The Iron A

A Review of the Hardware, Iron and Metal Trades.

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The Pennsylvania Lawn Mower.

We show in the accompanying illustration the improved Pennsylvania Lawn Mower for 1878, introduced to the trade by Messrs. Lloyd, Supplee & Walton, 625 Market street, Philadelphia. This lawn mower is well known to the trade and has enjoyed a wide popularity since first introduced. In its present form it is still better entitled to favor, as a careful examination of its construction and operation will show that it is struction and operation will show that it is an excellent implement. One of its most noticeable features is its lightness—the roinch size weighing only 36¾ pounds. This is secured in part by the use of a pair of grooved driving wheels instead of a solid roller, in part by hollow shafts, and in part by carrying the cutters on an open frame instead of a drum. The cutters are of the spiral pattern working against a fixed knife, which gives them an action similar to that of the blades of a shears, making them "self-sharpening." The adjustments are very accurate. The driving wheels are connected to the main shaft by a check on each, which permits them to turn independently without interfering with the working of the machine. When the motion is reversed in drawing the machine backward, the clutch prevents the large form revelving in the wrong direction. machine backward, the clutch prevents the knives from revolving in the wrong direc-tion. The independent action of the driving wheels is important, as in turning corners the motion of the outside wheel keeps the cutters revolving. It also enables a sharp corner to be turned without lifting the machine or, as is almost inevitable with the chine or, as is almost inevitable with the roller, digging up the ground. The machine is very strong, durable, easy of adjustment and not liable to derangement from any cause. The wooden roller which carries the weight behind is adjustable, so that the grass may be cut as close as is desired. In addition there are means for adjusting all the principal bearings to take up wear, &c. It is evidently the invention of a mechanic who understands the use of materials and has carefully studied the possibilities of improvement and adaptation to average use and care.

The "Acme" Double Acting Steam Pump.

The Valley Machine Co., East Hampton, Mass., the manufacturers of the wrought bucket plunger pump, have recently brought out a new double-acting pump called the "Acme," of which we publish an illustration. This pump has its cylinders and steam chest cast in the same piece as the bed, which has the shape of a hollow column. The position the shape of a hollow column. The position of the valve chest at the point where the cylinder joins the bed, greatly increases the strength. The shaft runs in babbitted boxes, and ample provision is made for taking up wear. The form of the frame renders it very stiff and at the same time gives space for the air chamber within it.

Removal of Phosphorus From Iron.

Mr. W. Baker lately delivered a lecture before the members of the Literary and Philosophical Society, Sheffield, on "Some Experiments for Removing Phosphorus from Iron," which contains some points of interest. Mr. Baker said the metallurgical problem which was the subject of his paper had become more important since the introduc-tion of the Ressemer and Sigmens-Martin

tion of the Bessemer and Siemens-Martin processes. In making large quantities of mild steel the effect of a small proportion of phosphorus and other elements had been observed more closely, and a more accurate knowledge of their influence on the properties of iron had been acquired. He proposed give a short account of the methods which had been proposed to purify iron from phos-phorus, and to include some failures of his which occupied a great deal of his time abor last year. He showed that the own, which occupied a great deal of his time and labor last year. He showed that the operations of puddling, and the Bessemer process, and the old process of making bar iron direct from the ore in charcoal furnaces effected the removal of phosphorus by oxi-dation, but at the cost of a certain quantity of the metals. He and others were led to change the mode of attack, but what choice change the mode of attack, but what choice of weapons was open he left them to judge, after quoting a patent taken out by Martin, in 1856, in which he made a wholesale appropriation of ideas. Relying only upon the fact that practically no known process was in successful operation, the experimenter purposed his own ideas recordless of what pursued his own ideas, regardless of what might have been done by others. He thought that the fact of such a string of nonsense receiving any recognition by a government office was a disgrace to our Patent Laws. Besides this grasping gentleman, he found very distinct for the use a very distinct claim for the use of chlorine in a patent by Rowan, in 1862. Nevertheless, he (Mr. Baker) was desirous to effect, not the oxidation, but the chloridation of the iron, and test the action of such tion of the iron, and test the action of such an atmosphering upon the phosphorus. The difficulty of experimenting with fused iron had been much diminished by the introduction of gas furnaces, and he found one of Fletcher's extremely convenient for his purpose. His first experiment was to melt about two pounds of Cleveland pig iron, containing about 1½ part of phosphorus, and then to introduce cautiously a tobacco pipe stem, through which he could pass a continuous current of dry chlorine gas for an hour. The loss in weight after the operacontinuous current of dry chlorine gas for an hour. The loss in weight after the operation was about 5 per cent., and the phosphorus was reduced from 1.005 to 0.865 per cent. This appeared encouraging, and a which is not an average for the iron horse

on the Reading road. For instance, passenger engine number 58, running on the Lebancoga.

on Valley branch, has traveled since June, non Valley Branch Leb phosphorus occurred several times. There was not, however, the marked expulsion of the phosphorus which could be ascribed to the the phosphorus which could be ascribed to the specific action of chlorine. His next experiment with carbonic deoxide was in a graphic pot, and reduced the phosphorus about one-half, the carbon beng practically untouched, allowance being made for a little loss during the melting. The second experiment reduced the phosphorus from 0.169 to 0.047. Mr. Baker gave the results of other experiments made by himself, and by others, and in conclusion said it seemed as if the at-

day's work at Port Richmond; has traveled 304,111 miles, and last year made 6451 miles. Number 2, at work at Richmond wharves, ran, in 1877, nearly 7700 miles, a total to 1878 of 331,391 miles. Excepting the express engines Ariel and Transit, dinarily good years those who have a sur-

A better custom, which all China might A better custom, which all China might adopt with immense advantage, is the choice by a certain district of a "chief," who in times of danger from robbers, &c., summons the people to his standard, and always acts as a sort of justice of the peace, judging and sentencing in lighter affairs, and prosecuting in the public interests in more important matters. portant matters

One law of the region is that interest on money lent should never exceed 15 per cent., which is a small rate for small loans in China. If any man is found demanding more, this "chief" is made aware of it, and accuses the "usurer" to the district magistrate.

In a village under one of these cniers a young man opened a pawnshop, being the first known in the neighborhood. For articles pawned by the disreputable or very poor, who alone patronized the establishment, he charged the common pawnshop interest of three per cent. per month. The In a village under one of these chiefs a terest of three per cent. per month. The depositors soon discovered that the interest depositors soon discovered that the interest was extremely heavy, and began to grumble. At last an "advertisement" was sent to the "chief," naming the pawnbroker and mentioning the hardness of the case. The "chief," himself one of the "wealthy" men, discovered that the pawnbroker was a nephew of his own. He at once sent an intimation to the effect that he would make good the loss sustained by every one of the intination to the effect that he would make good the loss sustained by every one of the depositors, and formally accused his nephew to the district magistrate, who, because of the excellence of the "chief's" reputation, was unwilling to act where his relation was concerned. "Carry out the law," was the only response of the chief, and, according to the "law" of the place, the pawnbroker was banished beyond the pale, to live among the "Jan" men. We have several men from that "region" here at present.

When a boy is apprenticed to the mercan-

When a boy is apprenticed to the mercantile trade, he has to find a competent security, who is responsible for his good conduct. The boy is brought on trial for a few days, at the end of which, if he is found stupid, he at the end of which, it he is found stupid, he is sent away; if retained, it is for a life of drudgery for a longer or shorter period. It is his duty to be up before the sun, summer and winter, to sweep out the rooms, brush down the goods' stands and dust everywhere. His life is during that time that of a slave, till time replaces him by another, as he re-joices in the dignity of the salesman, who opens his shutters with the rising of the sun, and closes them in the evening twilight.

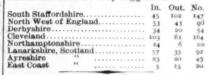
Wages are very fair, and all mess together in the establishment.

If an apprentice or assistant misbehaves he is advised to reform. If the advice is not acted upon he is dismissed at one of the three terms—first moon after sixth day when shops are first opened after the holi-days; on the fifth of fifth moon, and on the fifteenth of eighth moon. But if an assistant of any kind is discovered to be an opium smoker he is dismissed on the spot, the established custom of terms being repealed for this one offense, the offender not having even a few days granted him to look out for a situation. The reason of this is doubtless that the opium smoker has been always disthat the opium smoker has been always discovered to be utterly ruined in his moral character, and unable to refrain from stealing to gratify the passion of which he becomes the slave, and possibly also because it renders the smoker incapable of exerting his energies, and makes him a lazy workman. At all events he is not trusted.

Notice of dismissal is given by affixing the name of the party to be dismissed outside the kang on which he sleeps. It is done when all are retired to rest, and everybody sees in the morning that "so and so is to look out for a situation."

latter are always ready to lend grain till a favorable year enables the borrower to restore it. One man accumulated heap ences of opinion between the Iron Mountain ore Company and the Railroad Company still exist, and but little ore is being shipped from the Mountain. A little is received each day, but it is all shipped to other points for manufacture. It is possible that the difficulty may be brought to a crisis in a short time by the action of the Railroad Comissioners, whose duty will compel them to enforce the law in regard to freight rates. The Missouri Iron Company is doing a fair business, both in the ore and iron trade. They are receiving about 1200 tons of ore from the Simmons Mountain per week, and about 50 tons of iron is made per day at the Missouri Furnace, with which the Iron Company has a contract. They are shipping the ore to points on the Ohio River. Barges are on the way here now to take a large shipment of ore to Pittsburgh.

> The following figures of furnaces in and out of blast in some of the English iron districts and in Scotland are very suggestive:



The following are the closing remarks of John Roach, when making a speech a few days since, after launching the iron ship Rio de Janeiro: Seven months ago the ma-terial for yonder vessel, which was launched a half hour ago, was lying in the bowels of the earth. There it was worth \$5000. Today, in its present shape, it represents \$500,-000, and that money has gone to the elevation of American labor.



THE PENNSYLVANIA LAW.; MOWER FOR 1873

tion of a gaseous compound were well-nigh exhausted, and that the new efforts should be directed toward some solid combination which might be removed mechanically either as a slag or alloy possessing such distinct physical characters as regarded fusibility or physical characters as regarded fusibility or specific gravity as to render separation practicable. It was a most interesting prob-lem, and there was a splendid prize for its successful solution. He believed that a num-ber of reactions which took place at high temperature remained untried, and that, dif-ficult, as it seemed, a scientific investigation of the question with more time and resources. of the question with more time and resources than he could command would lead to a suc-cessful result.

American Advertising.—The Bristol (England) Mail says: The Americans beat us hollow in the matter of advertising, and it is our firm belief that in the United States the advertiser gets far more value for his money than the manufacturer of any other nation under the sun. With them advertis-ing is reduced, as one might almost say, to one of the fine arts, while in Great Britain we still appear to be even yet in the dark ages of advertising life. There are many reasons for this, into which we cannot enter here. Suffice it to say that the American is more judicious and persistent in what he does. He feels that with so many competitors springing up he must keep himself well toward the front in the commercial world, or else that in time he must inevitably "snuff out." As also the home demand gets overtaken, as it often is, by a too large sup-ply, so does he extend his area of advertising operations, and at the present moment in many of our British colonies—markets which ought to be entirely our own-Yankee "notions" are far better known than many of our specialties far more suited to the locality, simply because practical illustrations and well-written advertisements meet the eye of the consumer in almost every news-

The Railway World says: Of the four hundred and odd locomotive engines owned by the Philadelphia and Reading Railroad Company, but 15 were in the Reading machine pany, but 15 were in the Reading machine shops at the close of the fiscal year ended November 30th, 1877. These, General Manager Wootten says, have been in active service for periods varying from 20 to 40 years, and are now unit for further duty. The large force of 400 hands are busily engaged on repairs or building new engines to take their places. During last week five were turned out of the shops; one passenger locomotive, number 410; three ten-wheel connected freight engines; and an eightwheel connected coal-dirt burner number 50. The latter took the place of a 26-ton engine,

tempts to remove phosphorus by the forma- the lightest locomotive weighs but 11 5-10 | plus of grain do not sell it at the end of the tons, and the heaviest more than 40 tons

The Tennessee River Improvement.— To illustrate the importance of the Tennessee River as a transportation route, we have received information from a thoroughly reliable source that there are now building along that stream and its main branches 150



"ACME" DOUBLE-ACTING STEAM PUMP

flat-boats, which will be loaded for Chatta nooga. This is exclusive of considerable numbers which will be landed at Knoxville, Loudon and other points. If it is considered that these boats, which carry an average of 2000 bushels each of corn, wheat, &c., and large quantities of other produce, do only a small fraction of the yearly transport on that stream, its importance will be readily apprehended. The steamboats on the river, which ply steadily the year round, do all or nearly all the carrying trade for the main stream. The flat-boats are nearly all built on the smaller tributaries, where steamers never run, and remain loaded a long time, frequently waiting for a "big rise," on which they proceed to market. The usual number of flat-boats out of these streams is about 400; but this year being one of short

season, but store it up for years in the large circular granaries common in China, till ex-ceptionally high prices open the granary doors, and they sell in enormous quantities. To preserve the grain it is shoveled from one granary into another once a year during one granary into another once a year during winter, when the men have nothing to do. They of course sell as much yearly as covers their necessary expenses, which are, however, unusually small, as every woman is as hard a worker as every man, and all the year round. If, say, small millet is sold outside this district at 210 cash per tou, it is sold in that district at 210 cash per tou, it is sold in that district at 140 cash, but only to the original inhabitants of that district, or the natives of that district living elsewhere. To those "beyond the frontier," "Jan" men, as they are called, no grain is sold.

This year is the light season, when the

grain is sold.

This year is the light season, when the crops have been very short, just as in Shantung and other parts of Chihli, but so enormous have been the accumulations of former good seasons that no scarcity has existed; for the people are all either interrelated, or every man is on friendly terms with the many wealthy families, and the wealthy families restore it. One man accumulated heap upon heap, year after year, of sesamum, till one year it rose 50 per cent above the ordinary price, when he sold out over 2,000,000 catties at full 200,000 taels, but he did not sell out half his stock. His is, of course, an exceptional case, for his forefathers were weathy men under the Ming dynasty and

have continued so.

If men who were originally natives of that region but living elsewhere, happen to pass that way they are put up free of charge at any house they choose to visit, and their attendants and horses, if any, are fed in the This year the season is so bad that a large

This year the season is so can that a large mow of land in many places produces only two sheng (or pints) of millet. But they require no aid from the outside, while they are as careful in excluding all outside people from the benefits of their thrift.

I have said that women are as active workers in and outside the house as men; hence, to a great extent, the possibility of such a state of matters; for "if you want to get rich, you must ask your wife's leave." But they have one peculiar custom which is apparently intended to denote woman's inferiority. This custom compels women of the wealthy as of the poor to eat bread partly composed of the "bran" of small partly composed of the "bran" of small millet, mixed with the flour of that or other grain, of which alone the man's bread is The reason is not one which our would homologate, it is that man has the harder work, and requires the more nourishing food. But it seems to me, as all women universally, rich as well as poor, are subject to its power, that whatever reason is now given for this peculiar custom, it originally signified the inferiority of woMetals.

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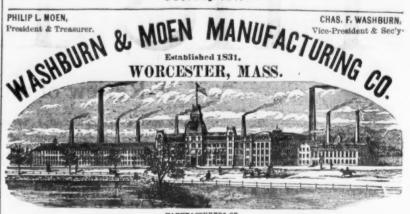
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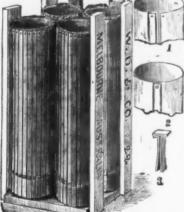
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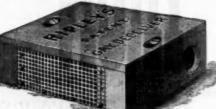
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And all kinds of Oyster & Steak Tin Wire Broilers, Meal & Flour Sieves. PATENT DOMESTIC COFFEE POT,

quarter of a century experience in the iron business, makes the following sensible con-tribution to a St. Louis paper. After noting the generally depressed condition of manufac-turing industries in the West, he explains it as follows:

The way a great many manufactures are started in St. Louis and elsewhere is this: A capitalist in his travels throughout the Eastern States sees manufacturers with fine establishments, doing a large business; it establishments, doing a large business; it may be profitable, and may not; he gets the idea it would be a nice business to go into in St. Louis. He inquires the price of the raw material, cost of labor to work it up and finish the goods ready for sale. He then goes to a retail dealer, probably a friend of his, to know what he pays for such and such goods. His friend tells him the price (not always truthfully, for fear he would) such goods. His friend tells him the price (not always truthfully, for fear he would know how much profit he made). The capitalist then compares the cost (according to his figures) with what the retail dealer pays for it, and sees an enormous profit. He goes around among his friends, tells them he has struck a big bonanza, and proposes to get up a stock company, with a capital of say \$100,000; he has faith in it, and to show his faith takes \$25,000 or \$30,-000 worth of stock; the balance is soon sold and the company is organized. Of course our capitalist is elected president. We must also have a general manager, secretary and also have a general manager, secretary and treasurer. Of course the largest stock-holders are elected to office, and some stockholders have friends that are just suited (in their estimation) for foremen in the different departments. The officers go their estimation) for foremen in the different departments. The officers go on a tour of inspection to all works of the kind in the East; they see everything (or think they do), make notes of the same, and return home, fully satisfied that they are competent to plan the buildings and machinery and run the works. They conclude to have a first-class establishment and let out contracts for large and ment, and let out contracts for large and expensive buildings. Of course they are going to do a big business and just coin money; their figures tell them so and figures won't lie. They next order their machinery, including a splendid engine—lots of bright polished work on it, &c. They put in all their machines, tools, &c., in the same extheir machines, tools, &c., in the same extravagant manner, and think, now we are ready to start to manufacture goods for sale. We employ our foremen, say three, at \$5 per day, which is low; our foremen have friends out of employment, and they are set to work, although they have never seen works of the kind before; they employ a few men that have worked at the business, perhaps good mechanics, and now we make perhaps good mechanics, and now we make a start. But this machine, nor that ma-chine, works as wells as the machine we saw at Mr. So-and-so's in the East. Mr. Presi-dent is positive the machines are the same

in every particular as they have at Mr. So-and-so's. The trouble is with the man that is running it; discharge him and get a good man in his place. It does not occur to Mr. President that there was some very important point in the machine they had in the East that was not shown him, and which he did not have in his; and that little point being wanting, is the reason they cannot turn out their work the same as they do in the East. All their machines are the same; they drag along changing this and changing that, and experimenting, in the hope of overcoming their trouble—all the time losing money. Then they have their first yearly meeting of the stockholders, to hear the reports read and see how big a dividend they are going to receive. After hearing the report their faces elongate. One remarks that the machinery is not right; when Mr.
President tells him he knows nothing about
it; another remarks we have not got the
mechanics here they have in the East.
Another offers the following resolution:

Resolved, That the president go East and engage the very best mechanic in that line

as superintendent.

It is put to a vote and carried. That is one move in the right direction. Mr. Presione move in the right direction. Mr. President goes East and engages a really good man at a salary, say, \$3000 per annum; that is moderate enough. Mr. Superintendent also has friends that when he goes to a new place always go with him. He suggests to Mr. President that it would be a good idea to bring those men with him; Mr. President thinks so too. They are engaged at an advance on what they are receiving, and their fare paid to St. Louis. Mr. President revance on what they are receiving, and their fare paid to St. Louis. Mr. President re-turns and reports what he has done; Mr. Superintendent will be here in a month; he is a first-class man; we have first-class mais a nrst-class man; we have first-class machinery, gotten up in better style than any in the East, and we will make money from this time on; our losses will be a thing of the past, soon to be forgotten. The super-intendent and friends arrive; the company are pleased to see them, and introduce them around the works. They start up the following the company are properly as the company are the around the works. They start up the fol-lowing day; Mr. President and other officers tell the superintendent the trouble they have constructed right; he tells the general manager he will have to shut down the works, remodel all the machinery before anything can be done; he tries to explain the little point that is deficient, and finds out that the general manager knows nothing practically of machinery. Superintendent goes to Mr. President hoping to be able to accomplish his object with him, namely, remodeling the machinery, when he is told that they are constructed precisely as they are where he came from. He takes Mr. President in to see the works, tries to explain where they are deficient, but he cannot see that that little thing would make any difference, which shows that Mr. President knows no more than his general manager or foremen. Mr. Superintendent persists in stopping and remodeling. Mr. P. tells him, no matter if

Business.

A gentleman who claims to have had a quarter of a century experience in the iron business, makes the following sensible contribution to a St. Louis paper. After noting the generally depressed condition of manufacturing the generally depressed condition of manufacturing the generally depressed condition of manufacturing the machinery is right or wrong, they run it one year, and he must run it as it is, he will have no changes made, the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year, and will put no more money into the content of the stockholders were disgusted with their losses last year. been for years to come, and came to St. Louis to better his condition, and finds himself tied hand and foot; cannot get what he wants so as to run the works and make money; sees what fine chances there are for making money in the business, if he would be allowed to do as he would wish. He can-not go back, because his situation is filled by another. Finally concludes to remain here and make the best of it; he drags along in a makeshift way. The yearly meeting is held, report read, more money lost. Mr. P. wants to assess so much on each share of stock to enable him to run another year; tells them times are hard, that his competitors in the East run their manufactories cheaper than we can in St. Louis; that men turn out twice the quantity of work there to what the men do here, and labor is cheaper, in all of which he is mistaken. The stock-holders want to know what has become of the money invested. books and find that— They examine the

Mr. President's salary is Secretary and treasurer.

General manager.

Superintendent.

Three foremen, each \$5 a day.

For walking bosses, and only one of them

For walking bosses, and only one of them has any practical knowledge of the business. The balance of the officers are like the comet's tail, useless appendages.

The stockholders come to the conclusion not to pay in any more money. The officers have no money on hand to run the works, and they shut down and never start again. The stockholders conclude they have lost all they are going to lose, and will not advance money to pay notes falling due; they go to protest, and Mr. Sheriff winds up the business for them. And others will wonder business for them. And others will wonder why they failed; cause, no practical knowledge of the business, and seven non-pro-ducers drawing big salaries, and what under other circumstances would have been a grand success has proved a disastrous failure

English vs. American Edge Tools.

The edge tool branch, says the Birming-ham Daily Post, though not so buoyant as it has been, must still rank among the most active in the locality. Indian government contracts are well cleared off, and there is a lull in this department for the moment, but good orders are coming in for the West Indies, which are favorably influenced by the more settled condition of Cuba, and the Mexican and Venezuelan markets have also take the settled condition of the settled condition of the settled condition of the settled condition of the settled conditions of the settled con taken large quantities of agricultural tools lately. The Cape is a good customer, both for the old-fashioned Kaffir pick and for the more modern implements—spades and hoes—which are replacing them; but the Brazilian trade is, and has been for some months past, miserably bad, owing to the overstock-ing and unfavorable exchanges previously ing and untavorable exchanges previously referred to. The home trade in edge tools continues dull. As to the prospects of the edge-tool branch there is no reason why it should not continue to flourish in spite of foreign competition, if manufacturers and men would work together in improving redes of wedgetion and kenning unsultimodes of production and keeping up quality, and so emulating the American makers, whose goods, as a rule, are lighter, handier and better finished than those turned out in this country. One of the greatest obstacles the English edge-tool trade has to contend with is the dishonesty of certain manufacturers, who send out thousands of dozens of beer grades for made of izon when it turers, who send out thousands of dozens or hoes, spades, &c., made of iron only, without a particle of steel about them, yet branded and labeled "Warranted Cast Steel" or "Warranted Refined Cast Steel." These goods are not distinguishable in appearance goods are not distinguishable in appearance from genuine steel tools, but their spurious character is soon apparent when they come to be used, and the result is to shake the confidence of buyers in all English-made goods of this character. "I can't trust English goods, even when they are marked cast steel," said a Cape buyer lately; they are as likely as not to double up the first day we use them; but if Leanuscat a Vankee he we use them; but if I can get a Yankee hoe I am safe." Some manufacturers, we be lieve, pay their men extra to stamp falso marks on their goods. This is st ter of which our Chamber of ought to take cognizance, in the interests not only of our trade, but of our commercial reputation and of common honesty

The cars for the Gilbert Elevated Road are in the course of construction at the Pullman Palace Car Works, at Detroit, Mich., and some of them are nearly completed. A description of them in the Detroit Free Press says that each car is 44 feet long and 8 feet to inches wide. At the eaves the ceiling is 6 feet 6 inches high, from which points 1 tell the superintendent the trouble they have had with their hands; none of them knew what they were doing, and he had better discharge them and hire good men in their places. It does not take him long to see that the three foremen knew nothing about the business, and he discharges them. They go to the office and report what the superince the seed of t business, and he discharges them. They go guarded by strong railings and gates. Each to the office and report what the superintendent has done. President goes to superintendent and tells him the foremen are towered by strong railings and gates. Each car has seating capacity for 64 people. The woodwork of the doors, seats and sides of relatives of some of the stockholders, and paneled with oak and mahogony. The seats must be reinstated, which, of course, he has are furnished with flexible backs of marcon to do. The machinery, he discovers, is not constructed right; he tells the general manof morocco for winter use, and in summer

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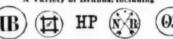
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The Founding of Alloys.

BY EDWARD KIRK

III.

FUSIBILITY OF ALLOYS. In forming alloys of the different metals they do not combine with each other in their solid state (with the exception of mercury) owing to their chemical affinity being counteracted by the force of cohesion; and in teracted by the force of conesion; and in order to form combinations of them it is necessary to liquify at least one of them, in which case they will unite, provided they have a chemical affinity for each other; thus bell metal and brass is formed when pieces of tin or zine are put into molten copper and in the formation of alloys of this nature, where one of the metals are more fusible than the other, the less fusible metal should be fused first and the more fusible metals added either in the molten or solid state. As the fusible metals are added the temperature of the alloy should be reduced to prevent oxidation or burning away of the fusible metals; for this reason it is better to add the more fusible metals in the solid state, as by so doing the temperature of the metals is decreased. Alloys are always more fusible than the less fusible metals of which they are composed, and in some cases are more fusible than the most fusible metal they contain, as is the case in alloys of tin, lead and bismuth. Some founders, in order to have the metal thoroughly united, first fuse the metals together and cast them into ingots and remelt them for use; this practice is bad, for in the after-fusion there is always more or less of the more fusible metal burnt away, or less of the more fusible metal burnt away, and it is hard to determine the proportions of the alloy or to have any certainty as to the quality of the castings. In melting ingots or scrap alloys they should be fused as rapidly as possible, and at the lowest available temperature, so as to avoid oxidation.

Some of the metals are almost infusible, and when heated to the highest heat in a grucible they refuse to melt and become

crucible they refuse to melt and become fluid; but any of the metals can be melted by combination with the more fusible metals; thus platinum, which is infusible with any ordinary heat, can be fused readily when combined with zinc, tin or arsenic; this metal, by combination with arsenic, is rendered so fluid that it may be cast into any desired shape, and the arsenic may then be evaporated by a mild heat, and leave the platinum, in its pure state, cast into any desired shape. Nickel, which barely fuses alone, will enter into combination with copper, forming German silver, an alloy that is more fusible than nickel and less fusible than copper; this alloy is rendered the whiter, harder and less fusible the more nickel is added. The less fusible metals, when fused in contact with the more fusible metals, seen to dissolve in the fusible metals; rather than melt the surface of the metal, is gradually washed down until the entire mass is dis washed down until the entire mass is dis-solved or liquified and reduced to the state of alloys. In forming alloys of brass, in furnaces where heat enough cannot be ob-tained to fuse the copper separately, the alloy may be formed by heating the copper to the highest heat, and then adding the zinc or tin in the molten state, so as not to

reduce the temperature of the copper.

In forming alloys with new metals it is usual to melt the less fusible metals first, usual to melt the less fusible metals first, and then add the more fusible metals and mix them by stirring them well together; the rod used in stirring them should be heated to reduess to prevent lowering the temperature or chilling the metal. In mixing alloys for bells the alloy should be well stirred with an iron rod, well heated, in which case part of the iron is dissolved and combines with the alloy and gives the bell a better tone; but alloys of brass that are to be turned or finished should never be stirred with an iron rod, for the iron dissolved from with an iron rod, for the iron dissolved from with an iron rod, for the iron dissolved from the rod will cause hard specks in the alloy if not thoroughly mixed. In forming fine alloys the alloy should be stirred with a rod of the least fusible metal contained in the alloy, or with a wood stick; the wood stick, in many cases, is better than a metallic rod, for it causes the metal to boil slightly and unite more thoroughly, but the wood stick cannot be used in a small crucible with only a small amount of metal. When alloys are made that contain only a very small quantity of a metal that is difficult to fuse, as in pewter, it is scarcely possible to throw into the melted tin the half per cent of melted copper, with any certainty of the two metals being properly combined; and in forming this alloy it is customary to melt the copper in a crucible and then add to it two or three times its weight of melted tin; this dilutes the copper and makes an alloy, called temper or hardening. This alloy is very fusible and is melted in an iron ladle, and is added to

molten tin or lead to give it the desired hard-ness and form pewter.

The metal mercury will bring about triple combinations of metals, even when the metals have no chemical affinity for each other, either when the metals are melted or in the solid state, as in water gilding, where the silver, copper or metal intended to be gilded is first made chemically clean by washing in acids and water, and then rubbed over with an amalgam of gold containing about 8 parts of mercury. This amalgam immediately attaches itself to the metal, and it is only necessary to evaporate the mer-cury, which only requires a very low heat, and the gold is left firmly attached to the metal, and it is only necessary to brighten it by burnishing. Water silvering is accomplished in the same way, and iron or copper and many other metals may be tinned in the same way. An amalgam of tin and mercury is made so as to be soft and easily crumbled. The metal to be tinned is cleaned in the second are in wilding with sold or in the same way as in gilding with gold or by turning or filing, and the amalgam is then rubbed on and the mercury evaporated by heat. This process of tinning is called cold-tinning. Other pieces of metal can be attached to a metal that has been tinned in

Universal Laine U08, this way, by soldering.

It is very strong. Holds very strong. Will not plate to be tinned is first scoured and made chemically clean. It is then immersed in a bath of pure molten tin, covered with resin and tallow to prevent oxidation. The iron plate remains in this bath for a short time, and the tin unites or becomes alloyed with

Furnaces for the melting of brass and similar alloys may be built of common brick and lined with fire-brick; but the best fur-naces for this purpose are made with a boilernaces for this purpose are made with a boilerplate caisson from 20 to 30 inches in diameter and 30 or 40 inches high. This caisson
is usually set down in a pit, with the top of
it only 10 or 12 inches above the foundry
floor. The ash pit, or opening around the
furnace, is covered with a loose wooden
grating, which may be removed for taking
out the ashes. The iron caisson is lined with
fire-brick, the same as a cupola. The lining
is usually 6 inches or more in thickness.
The diameter of the furnace on the inside
should not be more than 4 or 5 inches larger
than the diameter of the crucible intended
to be used in it; for if the furnace is too
large more fuel and more time will be required to melt the metal. These furnaces
are liable to burn out hollow around where are liable to burn out hollow around where the crucible sets, and to avoid a waste of fuel they should be straightened up with fireclay and fire-sand, and always kept as near straight as possible. These furnaces are sometimes built square on the inside, but the square furnaces are not near so good and require more fuel than the round ones do. A good brass foundry usually has three or more of these furnaces. They are generally of different diameters to suit different sized

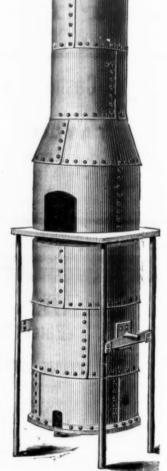


Fig. 16.

crucibles, and when it is desirable to make a large casting that requires more metal than can be melted in one crucible, two or more furnaces are used to melt the metal. has a good draft, the metal is usually melted in its busine without a blast; but when the metal amounts to several tons a blast is generally used. The swivel cupola (Fig. 16) is well adapted to the melting of brass, and is often used for that purpose. The common brass furrace usually depends upon a natural draft, and the furnace is connected with the stack by a small flue on the back side of the furnace, near the top. Three or more furnaces are usually connected with one stack, and each furnace is supplied with a separate damper for regulating the heat. When the stack is not high enough to give the furnace good strong draft, the ash pit is closed up ight and a mild blast turned into the pit, for better melting can be done by turning the blast into the pit and allowing it to find its way up through the grates, than by put-ting the blast directly into the furnace by the state of the furnace by the state of the furnace by the same of the furnace o

construction, but as a temporary expedient almost any close fire may be used, including some of the common heating stoves, although it is much more convenient that the fire be open at the top, so that the contents of the crucible may be seen without removing it from the fire. Such stoves, however, radiate heat in a somewhat inconvenient manner. and to a much greater extent than the com-mon brass furnace, which is lined with firemon brass furnace, which is lined with ure brick or clay, and the lining concentrates the heat and economizes the fuel. The brass furnace is often used for melting iron in a crucible, and they answer equally as well for melting iron as for brass when the furnace immediately as well for melting iron as for brass when the furnace in der Geistlichen, Unterrichts und Medicinal Augelegenheitan, before the 1st of December, 1878. are frequently melted in the ordinary black- December, 1878.

the surface of the plate, and comes out of the bath perfectly coated with tin, and is called tin plate. In this process the iron plate must be heated to the temperature of the molten tin before combination takes place. But by the aid of mercury the iron plate may be tinned at the atmospheric temperature.

BRASS FURNACES.

Furnaces for the melting of brass and similar alloys may be built of common brick and lined with fire-brick; but the best furnace is generally hard coal or coke, which is broken into lumps about the size of hens' eggs for use. Either of these fuels will do good melting, but the coke will generate melting, which will prevent the oxidizing of melting, which will prevent the oxidizing of the metal, and for this reason the coke is to be preferred when it can be obtained. Gas-

Steel Ships.—The long-continued depression in the coal and iron trades is beginning to attract attention to the possibility of constructing a greater number of steel ships. If the cost of steel were materially reduced If the cost of steel were materially reduced the difficulties would cease. Practical men are now endeavoring to effect this object, and if successful a great impetus is likely to be given to this department of industry. Were it not for the war in the East the shipbuilding trade would experience a sharp revival. Ships are now laid up in dock for which no employment can be found, and many iron ships are in the market at from £8. 10/ to £9. 10/ per ton, while older vessels can be had some 20 per cent. cheaper. The number of ships of all nations reported as lost in 1877 was 2000, and as the majority of these belonged to Great Britain, some idea may be formed of the wear and tear of ships in years when trade is active and a larger quantity of tonnage can be employed than that alloat last year. Iron steamers and iron sailing ships are now to make the support to the suppose that we ware much in vegent that worden received as the majority of the suppose that we have the suppose that we want to the suppose the suppose that we want to the suppose the suppose that we were the suppose that we want to the suppose that we want to the suppose that we want to the suppose the suppose that we want to the suppose that we want to the suppose the suppose that we want to the suppose that we want to the suppose the suppose that we want to the suppose the suppose that we want to the suppose that we want to the suppose the suppose the suppose that we want to the suppose that we want to the suppose the suppose the suppose the suppose that we want to the suppose the suppose that we want to the suppose the suppose that we want to the suppose the suppose the suppose the suppose that we want to the suppose t Iron steamers and iron sailing ships are now so much in vogue that wooden vessels are rarely built except in the colonies. Nevertheless, wooden ships have proved in the long run very good investments, as was demonstrated a few years ago by the presdemonstrated a few years ago by the presence in the harbor of Ramsgate of a regular trader that had been built 60 years ago. New colonial ships can now be purchased at from £6 to £7 per ton, but very few second-hand ships of this class can be had for the lumber trade. The restoration of commercial enterprise will raise the value of this description of property, as timber carrying ships are becoming very scarce, and if there be an active demand freights will rise and the value of tonnage will increase in proportion—Landon (idual). crease in proportion.—London Globe.

From the Cincinnati Enquirer of the 15th we extract the following concerning the meeting of the creditors of Howell Gano & Co. : A meeting of the creditors of the hardware firm of Howell Gano & Co was held yesterday in Parlor A, Grand Hotel. About 75 creditors, representing some \$150,000 of the indebtedness of the firm, were present. The indebtedness of the firm, were present. The meeting was called to order about 11:30a. m. by Mr. Howard Douglass, the attorney for the firm. Mr. A. H. Saxton, of New York, was elected chairman, and Colonel L. M. Dayton, of this city, was appointed secretary. Mr. W. P. Hulbert then moved that the meeting be a private one, and that all reporters be excluded. The motion was adopted, after which a committee of seven was appointed to examine the accounts of the firm, and report the amount to be paid. was appointed to examine the accounts of the firm, and report the amount to be paid, &c. The following gentlemen were ap-pointed upon the committee: Messrs. A. H. Saxton, of New York; A. Britain, of Joliet, Ill.; J. L. Haven, of Cincinnati; J. S. Cole, of Wheeling, W. Va.; C. H. Wright, of New York; Samuel Disston, of Philadel-phia, and Joseph Graff, of Pittsburgh. After the appointment of the committee, the most more furnaces are used to melt the metal. But when more metal is required for a casting than can be melted in three or four crucibles, the metal is then melted in the reverberatory furnace, or in the common iron foundry cupola. When melting brass in a cupola the copper is usually charged and melted before charging the zine or more fusible metals, and in some cases the zine or fusible metals, and in some cases the zine or the commondation for a composition largely signed. It is but justice to Messrs, Howell to the creditors preserved. tin is not put into the cupola at all, but is signed. It is but justice to Messrs. Howell melted in an iron ladle and added to the Gano & Co. to state that the creditors prescopper after it has been drawn out of the cupola. When the amount of brass to be ments that were made, and expressed their melted in a cupola is small, and the cupola willingness that the firm should go right on

> Commercial Travelers and Drinking Customs.—The Montreal Witness says: A correspondent writing from a town in Ontario, in referring to the visits of commercia travelers, notices an improved state of affairs of late. Formerly the commercial travelers were the best friends the tavern keepers had; they not only as a general rule drank themselves, but they treated their customers at the bar in the most lavish manner. Nearly every transaction in former times was opened with a drink, and nearly every bargain was chuched with one. Now it is different. Our correspondent is inclined to attribute the cause of the change to the depression in trade; but this is not a main reason. The influence of Commercial Travelers' Associations has been brought to bear against this obnoxious habit of treating customers, and the commercial travelers of to-day are beginning to regard it as unbusiness-like and undignified.

> The Prussian government offers a prize of \$80,000 to the inventor of a substance which is fit for the manufacture of casts from works of art. The substance required must flow into moulds easily, without injuring them more than plaster does. The casts made must be able to undergo frequent

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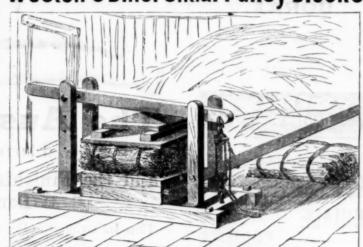


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Stamford, Conn., U.S.A. Sole Makers in the United States. NEW YORK SALESROOM, No. 53 Chambers St. How the Silver Dollars are Made.

ing mints besides the one in Philadelphia—one in San Francisco and the other in Carson City; and assaying and refining are done in Helena, Montana; Boise City, Idaho; Denver, Colorado; and at a few other points in the far West. The Philadelphia Mint is capable of turning out about \$1,500,000 in coined money a month; the San Francisco mint, \$1,000,000, and the Carson City Mint, \$500,000. The mints cannot, of course, be given over exclusively to the coinage of silver dollars. The subsidiary coins must be struck, and a certain amount of gold coinage goes on all the time. Gold is needed by the government to buy silver with, aside from all other purposes. It is coined mostly in the form of double eagles. During last month 21,210 double eagles, 20 half-eagles, 20 three-dollar pieces, 20 quarter-eagles and 20 one-dollar pieces, 20 quarter-eagles and 20

ply bars of a convenient size for handling. The metal is then assayed to determine whether it is exactly of the standard fineis finished, the next operation is the milling, which is done with a curious sort of machine. The edges of the coin are thrown up and grooved by this process. After another cleaning with sulphuric acid the coins are ready for the die. The stamping is done on a screw press, and both sides of the coin are stamped at the same time. The dies are cylindrical blocks of steel, upon which are carved the designs to be transferred by pressure to the coins. Art of a high order, carved the designs to be transferred by pressure to the coins. Art of a high order, as well as fine mechanism, is conspicuous in this part of the coining process. The designer, in the case of the new silver dollar, Mr. Morgan, first draws his design on paper, from which is made a model in wax of which of mortality from diseases of the lungs, support is taken, and from this cast. a plaster cast is taken, and from this cast an eletrotype is taken, upon which careful revision is made with the graver. This electrotype, like the model and cast which

How the Silver Dollars are Made.

The capacity of the various coining mints and assay offices in the United States will be fully tested during the coming year. The law of February 28, 1878, demands that between 2,000,000 and 4,000,000 of the new dollars shall be turned out every month. The officers of the mints think that 3,000,000 will be the maximum of production for the present, and to coin as many silver dollars as that a month will require brisk work at the mints. There will be, as a matter of course, no lack of silver in the mints to work upon. On the 11th of December last 11 tons of silver were sent to Philadelphia from the Assay Office in this city; 7½ tons were sent on the 31st day of the same month, and at least 12 tons more have been sent during the last fortaight. Most of the silver received at the Philadelphia Mint passes through the New York Assay Office. There are two coining mints besides the one in Philadelphia—one in San Francisco and the other in Carson City; and assaying and refining are done in Halare Assay Office are condensed. Only a small amount of the small amount of Mexican metal is received in thin, irregular-shaped pieces and sunds and sulvar sweek as id. Only a small amount of Mexican metal and sold as week as id. Only a small amount of the small and sulvar small amount of Mexican metal and sulvar sweek as id. Only a small amount of the small and sulvar small amount of Mexican metal is received in thin, irregular-shaped pieces and sulvar sweek as id. Only a small amount of the small and sulvar small amount of the small and sulvar small amount of Mexican metal is received in thin, irregular-shaped pieces and sulvar sweek as id. Only a small amount of the small and sulvar small amount of the sm alloy; the gold is then reboiled and reduced

silver is sent from the Assay Office to the Philadelphia Mint pure, or 999 fine, which is about as pure as can be. It is sent in large bars, and, when received at the mint, is melted and alloyed with copper. Coin silver is 900 fine. After being melted and alloyed, the metal is cast into ingots, which are simply bars of a convenient size for handling. over and through a perforated bridge at that end of the annealing oven or furnace in which the box or boxes containing the whether it is exactly of the standard fineness. Assaying is done by what is knewn
as the dry or humid process. Samples for
assay are taken while the silver is in a fused
furnace, the smoke and spent portion of the
condition, and two assays are made of every
specimen. The silver ingots then go to the
coiner. They are first rolled into strips. assay are taken while the silver is in a fused condition, and two assays are made of every specimen. The silver ingots then go to the coiner. They are first rolled into strips, and as the rolling process is apt to make the metal brittle, it is annealed to soften it. Silver is annealed simply by heating in an open wood fire, and then being allowed to cool gradually. The silver dollar strips are passed through the rolls 9 or 10 times before the first annealing and 4 or 5 times afterward. Then the process of annealing is repeated. After the last annealing the strips are run through cutters which divide them into drafts of the proper thickness for the coins; and these in their turn are run through a stean punching machine which cuts planchets the proper size for the coin. From 150 to 240 are cut in a minute. As the metal gets greasy during this process, the planchets are then dipped into a bath of diluted sulphuric acid, which is too weak to act upon the surface, but effectively removes all foreign matter. The planchets are then adjusted; that is to say, they are carefully weighed, and all that are lacking in weight are cast aside; such pieces are called "lights," and the "heavies" are the pieces which weigh too much and are filed off. The adjusting is done by women. It is a process which requires much delicacy, and scales are used which are sensitive to one sixty-fourth of a grain. After the adjusting is finished, the next operation is the milling, which is done with a curious sort of machine. The edges of the coin are thrown up and described to this uniform heat larguage metal sheets or all the smoke and spent portion of the fame or heat is met on its way or exit to the stack (the draft of which is tendent of which is done with a curious strips, and the strips are different matter annealing of their contents. The boxes therefore subjected to this uniform heat conducted to the conference of the coin are thrown up and the conference of the coin are thrown up and the conference of the coin are thrown up and the conf

perinduced by the dust from the grindstones is positively fearful. A post-mortem examination, held on the body of G. W. Johnson, of Wheeling, who died a short time ago, which was published in the daily papers, furnished a full description of this so-called dilar. The design is transferred to a steel die by using Hill's reducing machine, constructed on the principle of the pantograph. One arm of this instrument, with a blunt point, follows the lines on the electrotype, while the other arm, to which is attached a strong and rapidly revolving drill, reproduces the same lines on a smaller scale upon a steel block. By means of a press this impression is transferred to another block in intaglio and thence upon another block, which is the parent die. After each transfer the lines are carefully improved with a graver. Steel of the same quality as that of which the parent die is made is used for the coining dies. They are annealed and trued on both ends. Two or three blows in the screw press, which is worked with a large wheel, secures a perfect impression, and both the obverse and the reverse of a coin are struck at once. Machinery places the planchets between the dies, and afterwards drops the completed coin in a box. Two or three pieces of each coinage are reserved for the annual government assay.

The process of melting, refining and assaying gold and silver are carried on in the Assay Office, in this city, on quite as large and the coin the face when worn, could be easily adjusted, and would save many a poor fellow from an untimely grave. If any is positively fearful. A post-mortem examination, held on the body of G. W. Johnson served for the annual government assay. The process of melting, refining and assay ing gold and silver are carried on in the Assay Office, in this city, on quite as large a scale as at the Philadelphia Mint. Not only government work is done here, but large deposits are made daily of gold and silver bullion by private individuals. Gold is always found alloyed with silver, and it is never found with any other alloy. To separate the silver from the gold, the bullion is boiled in sulphuric acid, which removes the

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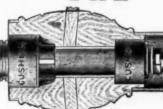
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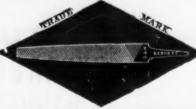
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The Ausable Ivails

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FINE TEMPERED STEEL SPRINGS.

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Rolling Wood Shutters

Of various kinds. Clark's Shatters are the **Best** and **Cheapess** in the world. Are fitted to new Tribune Building. Lenox Library, Delaware and Hudson Canal Co.'s Building, Transatlantic Steamship Co.'s new Dock, American News Office, &c., Posey County Court House, Mt. Vernon, Holt County Court, Oregon, Mo. Also to buildings in Boston, Emcincali, Detroit, Janesville, Wis., Baltimore, Canada, &c. Have been for years in daily use in every principal city throughout Europe, and are indorsed by the **Leading Architects of the World.**Office and Manufactory. Office and Manufactory,

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The Ansonia Corrugated Stove Platform, with its heavy figured ogee border, is believed o be the best Platform offered to the trade, as shown in the illustrated section herewith it equires no nailing to keep it in place or to revent it from turning up at the edge; while he metal is of sufficient thickness to require wilning.

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The low price, superior quality and fine
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MEDALS AWARDED: Paris Exposition, 1867; Vienna Exposition, 1873; Philadelphia, 1876. Illustrated Catalogue sent per mail on application

The Fort Pitt Boiler Works.

The Chicago Journal of Commerce says:
The firm of D. W. C. Carroll & Co., established in this city in 1843, have gradually added various lines to their business of boiler making until they are now fully prepared to execute almost any kind of work, and have succeeded in establishing a large business in the line of tanks of all kinds. We believe this firm constructed the first iron oil tank made in Pennsylvania. This tank was made of 5-16 plate and held 5000 barrels. To build such a tank was by many iron workers thought to be impracticable; but this industry has now developed until it is not an uncommon occurrence with them to build tanks holding 25,000 barrels. Another branch of ironwork which this firm are successfully carrying on is the building of iron frame roofs, used more generally for denote and bridge building and building of non frame roots, used more generally for depots and bridge building, and are coming into quite general use for rolling mills, furnaces, all large buildings and, finally, probably the latest iron industry which has been developed, iron boat-buildwhich has been developed, iron bont-building. Messrs. Carroll & Co. are doing a large business in this line. They built the boat G. W. R. Bailey for Capt. James B. Eads, which he used in dredging the mouth of the Mississippi River through the jetties. This boat was building when the boiler works were burned. Temporary buildings and machinery were put up on the river bank, and the work progressed without interruption, and the vessel began in April was completed early in the fall of last year, this company doing all the ironwork. year, this company doing all the ironwork, including boilers, engine and all that pertains to rigging an iron boat complete. very interesting work which we witness very interesting work which we witnessed in these shops was the riveting of a large boiler by the use of a machine punch opera-ted by steam, which did its work rapidly and better than by hand. We found the works better than by hand. We found the works running almost to their fullest capacity. There was one order for 150 farm boilers being rapidly disposed of, besides a score of other large boilers and fire-boxes; an iron roof for a Pennsylvania railroad building had just been completed. We need scarcely add that Messrs. Carroll & Co. have secured their extended trade by attention to business. their extended trade by attention to busicess and thorough workmanship in every instance.

On Boiler Incrustations.

The inconvenience arising from boiler in crustations is well known, and although there are a great number of preventives, many manufacturers prefer rather to have the scale picked from their boilers than to adopt means of counteracting its formation, a fact which can only be attributed either to negligence or unfavorable experience with one of the numerous infallible specifics recom-mended to them. The principles upon which the action of these preventives is based are too insufficiently known, and many false ideas still adhered to must be dispelled before an intelliadhered to must be dispelled before an intelli-gent appreciation of the various modes in use or suggested is possible. A comparison of the analyses made of various scales will show that the same substance does not pre-dominate in all cases, so that four classes may be distinguished, of which the following may serve as examples:

First Class.-Sulphate of lime predom

inating substance.			
	I.	П.	III
Anhydrous sulphate of lime.	48.00	62.88	76.7
Carbonate of lime	44.25	14.05	8.3
Anhydrous magnesia	0.82	6.69	2.6
Oxide of iron and alumina	2.24	5.28	1.6
Silica	0.47	trace.	0.8
Combined water	3.68	7.90	3-4
Insoluble matter	0.48	2.25	5.6
	II. COMPANION	A common	*
Total	99.94	99.65	99-3
Specific gravity	2.703		2.74

The scale of No. I was taken from a Field boiler fed with well water, the deposit being 0.08 inch thick, very hard and black. No. 3 came from a boiler fed with river water previously heated. It was 1.60 inch thick, black and very hard.

The following is the analysis of a scale belonging to this class which came from the

longing to this class, which came from the boiler of an ocean steamship:

Sulphate of lime. 72,42
Hydrated magnesia. 24,24
Chlorine, fluorine, silica, phosphoric acid, alumina, oxide of iron, &c. 3-34 . 100.00 Second Class.—Predominating substance, lime have been for arbonate of lime. Analysis of the scale of a labove the fire-place.

ortable engine boiler :

Total arbonate of lime.

Magnesia. Oxide of iron and alumina. Insoluble matter..... 5.4 magnesia Anhydrous sulphate of lime . Combined water Total.... 96.36

The third analysis being made of scale fed with water to which soda had been added in insufficient quantity.

Third Class.—Predominating substance, hydrate of lime. Analysis of a crust 15 to 20 inches thick from a boiler fed with water which had been previously purified by

Haen's process:
Hydrate of lime
Caustic lime
Hydrate of magnesia
Carbonate of lime
Oxide of iron and alumina
Silica
Insoluble matter

99.66 fats and fatty acids.

purified previous to use, the incrustation will consist chiefly of sulphate and carbonate of lime, and that when fatty substances are introduced into the boiler, either purposely or by the water from condensers, a solid mass may be formed which does not, however, generally give rise to the inconvenience which scale of the two first classes possess. Scale chiefly composed of hydrate of lime is formed only when the feed water has been but imperfectly treated by Haen's process, which is otherwise excellent.

Evidently the substances which have been proved to be present in the scale must have proved to be present in the scale must have been in some manner produced in adhering layers. A superficial examination of the question might occasion the belief that the deposit is due to the concentration of the water in the boiler, so that a part of the matter in solution must be precipitated. This is only partly true, because there is another more important cause which affects the formation of scale mation of scale.

In order to arrive at correct conclusions it is necessary to consider separately every substance entering into the composition of the scale.

Let us commence with the sulphate of lime. It is well known that this salt in combination with water forms gypsum, which when powdered, heated and then stirred with water forms a sold mass. Sulphate of lime is met with in many natural waters, the following table indicating in what amounts

The Rhine at Arnhem contain
The Rhine at Arnhem contain
The Meuse at Grave
A pump at Flessingen
Leyden
the Hague
Utrecht

Gypsum is but little soluble in pure water (1 in 400 parts). It is one of the small number of salts whose solubility decreases with a rise in the temperature of the water. Fresenius states that at 53 F. 1000 parts dissolve 2.33 parts of it, while it sinks to 2.17 parts at 212 F. This difference of solubility is, however, greatly increased whenever chloride of sodium—ordinary salt—is present, as the following table, which embodies the results of Mr. Couste's experibodies the results of Mr. Cousté's experi-ments on this subject, will prove:

1000 parts sea water will dissolve— 5 parts sulphate of lime at.....

We see, therefore, that when the boilers of an ocean steamer are fed with sea water, sulphate of lime is deposited not only in consequence of the evaporation of water, but chiefly because an increase of temperature diminishes the solubility of the sulphate of Carbonate of lime behaves in quite a

different manner. In pure water free from carbonic acid it is almost insoluble, 30,000

parts being necessary to dissolve one part of carbonate of lime, but if the water is saturated with carbonic acid, 1140 parts only are required. If water thus charged with car-bonate of lime through the agency of carbonate of lime through the agency of car-bonic acid is boiled, the latter is expelled and almost the entire amount of the car-bonate of lime is precipitated. Therefore well water, which generally contains car-bonic acid, is apt to give rise to such scale. When the precipitation is rapid, a. gray or yellow powder is produced, but when it is gradual, adhesive layers are most probably formed. Formerly it was held that solid incrustations were due solely to the presence of crystallized gypsum. it was held that solid incrustations were due solely to the presence of crystallized gypsum, which mechanically inclosed the particles of carbonate of lime; but one of the analyses given and the hard deposits of the Carlsbad springs holding 93.6 per cent. of carbonate of lime, prove this supposition to be incorrect. Alefeld explains the formation of hard adhesive masses of carbonate of lime in the following manner: The substance is precipitated as a powder, which cannot settle tated as a powder, which cannot settle while the ebullition during the working period of the boiler keeps it suspended. It is deposited during the night when the boiler is not worked, and when the fires are boiler is not worked, and when the fires are lit in the morning the influence of the heat forms a compact mass. It is a fact that often small pieces of detached carbonate of lime have been found to unite, especially

96.8 A Supplementary Contract for the Poughkeepsie Bridge.—We have already announced in these columns, on the authority of the chief engineer of the Poughkeepsie III. Bridge Company, that work on that great structure is about to be resumed. A temporary stoppage of the work took place several months ago on account of differences arising between that company and the contractors, known as the American Bridge Company It is satisfactory to know that within a few days these have been adjusted by a supple mental contract executed in this city that now all is harmonious, not only as be-tween the respective companies, but a number of men who have been waiting for their pay will soon get their dues. The action just taken was made necessary in consequence of increased expense in carrying the foundations deeper than was originally contemplated.

Self-sharpening Plow Share or Point. Total

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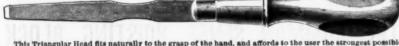
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PATENT TRIANGULAR HANDLE SCREW DRIVER.



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CLARK'S HORSE CLIPPERS.

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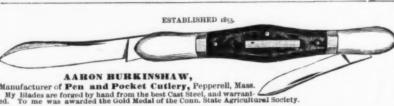
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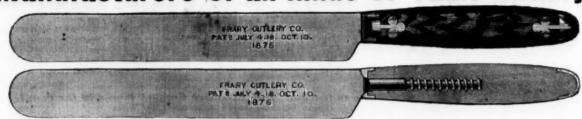
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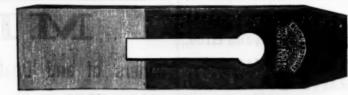
The above Illustrations represent their New Patent Screw Tang Lock Fast Solid Handle Knife.

There is no question but that a solid handle Knife is much more preferable than a scale tang. The great objection to their use hitherto is, that no solid wood There is no question but that a sould handle knill handle properly secured—no handle put on with cement will stand the wear and tear of every day page. The cement will expand and contract with the action of heat and cold, and become loose, crack and come off, causing great projudice against their use. This objection is overcome in our patent screw tang. A wood screw is welded to the tang of the Knife or Fork, and screwed firmly and securely in the handle and looked there by the boister, making a very strong neat and handsome knife, whien we warrant never to get loose, crack or come off. We manufacture a large variety of patterns, both Table, Butchers and Carvers, and furnish the patent naudle nearly as low as the scale tang. We are prepared to furnish this line of goods, together with the scale tang and from handle, very promptly, and very respectfully invite the attention of the trade.

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Gouges of all lengths and circles, beveled inside or outside. Nail sets, Scratch and Belt Awis, Chise Handles of all kinds. Orders filled promptly; generally same day as received.

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& Sons' Manufacture, please to see that they bear their Corporate Mark. ESTABLISHED 1852.

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Ball's Pat. Solid Steel Sheep Shears.





A New Monkey Wrench.

This wrench, manufactured by Israel H. Johnson & Co., 442 N. Twelfth street, Philadelphia, is a representative of that class of time-saving tools which are constantly being developed as a result of the necessarily reduced cost of production during hard times.

times.

The novel feature of its construction is apparent from a glance at the illustration. Its general appearance is much the same as ordinary forms, except that on the lower end of the adjustable jaw, a number of teeth (say eight or ten) are cut, which engage in corresponding teeth on the stem of the main jaw. Opposite to these teeth is a spring attached to the sliding jaw, and holding the teeth in contact. There is play enough at this point to admit of adjustment by pushing against the spring, when the teeth are thrown out of gear and the jaw may be moved by the thumb into the required position and then al-

by the thumb into the re-quired position and then al-lowed to drop in gear again. This is all done by the thumb in a moment, and is very rapid and convenient. The teeth have one-sixteenth of an inch pitch, which affords a sufficiently accurate adjust-ment for all ordinary cases, while the wrench possesses the great advantage of re-maining in whatever position it is placed until intention ally moved to another. With the wrench under consideration the teeth are kept in gear and hold the jaws firmly in place, the greater the pres-sure upon the wrench the greater being the grip of the

teeth. It might be supposed that this arrangement would be subject to rapid wear, but it has been found in actual practice that after months of constant, everyday use there are no apparent signs of wear; it also possesses the advantage that in case of wear the teeth of this wrench may be dressed up with a file in a short time and with little

with a file in a short time and with little trouble. Only the teeth on the stem are subjected to much wear, as they are case-hardened forgings, the other jaw and teeth being of hardened cast steel.

The makers have had many of them in use in their own works, and state that their men will not now use any other. They are furnished in three sizes, and with either bright or black finish. bright or black finish.

Agricultural Implement Trade in Germany.—We have the following letter from the German committee on an inter-national market for agricultural machines and implements:

HAMBURG, 1878. The committee for the international market for agricultural machines and implements (which is to be held in this city from the 13th to the 17th of June, of this year) are endeavoring to procure for manufacturers all facilities for attending the market. At its request the managers of the following railroads have agreed to return all machines and implements unsold at the international market free of cost, provided that they are sent to Hamburg by their lines; Coeln Minden, the Altona Kiel, the Glückstadt Elmshorn, the North Brabant, the Netherland, the Main Neckar, the Tilsit Insterburg, the Rhenish, the Hessian Ludwig, the Royal Bavarian and the Baden railroads. A similar privilege has been granted by the Ham-burg American Packet Steamship Company, the North German Lloyd, the Royal Netherthe North German Lloyd, the Royal Netherland Steamship Company at Rotterdam and Amsterdam, and the lines plying from Hamburg to Hull, Grimsby, West Hartlepool, Liverpool and Christiania respectively. The Gothenburg "Svenska Lloyd" have reduced the freight for the return voyage to Sweden to one-half. Other administrations addressed, especially the Royal Prussian Minister of Finance, have not yet returned their decision, but without doubt the free return of freight for machines or implements not of freight for machines or implements not sold will be granted. Applications for par-ticipation in the market are proceeding satisfactorily.

The Atianta Constitution says: We can safely assert that the mines of North Georgia in five years will yield as much gold as those of California ever did. What more does a man want than to pick up nuggets worth \$40 or \$50? Only last year a party of road hands, working the public road near Dahlonega dug up a pluc of gold as large as a nands, working the public road near Danlonega, dug up a plug of gold as large as a man's thumb. A countryman hauled a load of cabbage 40 miles to this city from Dawson county during this winter, and had in his pocket, along with his tobacco and knife, two pieces of gold that could not have been worth less than \$25. He was just as careless with them as if they had been a couple buckeyes carried to cure the rheumatism. We said to him: "Is there much of this kind of gold in your country?" "Yes," said he: "but you have to dig for it." "Well, why do you raise cabbages and haul them so far?" He replied: "Well, you see, stranger, I have to bring my wagon down to Atlanta to carry back salt and iron and a few dry goods for the old lady, and cabbage is about as light a load as I can haul. I generally dig gold when my crop fails." onega, dug up a plug of gold as large

Prof. Kedzie, in making his report of a test of the minerals recently found in Woodson country, and supposed to be silver, says:
Though these specimens have been carefully assayed, in none of them has there been found any trace of the above metals—not withstanding the results claimed to have been obtained by rough assays made upon the spot. The specimens are because the specimens are specimens are specimens as the specimens are spe the spot. The specimens are, however, very interesting from a mineralogical point of view, and indicate a somewhat peculiar formation in the locality. The so-called silverbearing ore is a cellular quartz rock of a bearing ore is a cellular quartz rock of a cherty character, containing in its cavities fine quartz crystals and also incrustations of various zeolitic minerals. The "gold" ore is a decomposing zeolitic rock containing perfect crystals of calcite and filled with minute glittering scales of yellow mica. The "copper" ore is a fine specimen of massive phosphorite (lime phosphorite), evidently of copper origin. per origin.

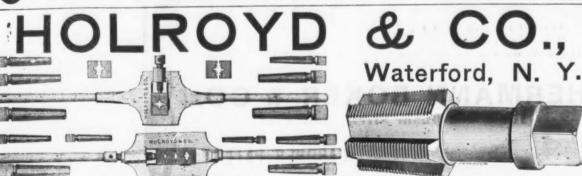
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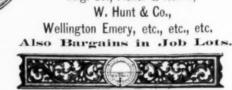
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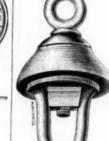


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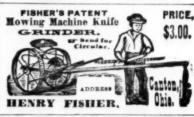
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6,00	3.00	1.40
5,00	2.50	1.25
6,00	3,00	1.50
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Although The Iron Age has never laid claim to being an export journal, its value as a medium of information to those manufacturing for export or desirous of securing foreign orders has met with generous recognition. The important editorial articles on trade with foreign countries are of especial interest and value, and are part of a series which will include all the principal markets of the world. Our statistical tables are compiled with great care from the latest and most trustworthy official publications, and from our analyses of imports and exports has been in silk, both import and export.

access. Our readers may be sure of finding in our columns whatever of interest or value can be obtained concerning foreign markets and our trade relations with them. We would also say that during the next half year The Iron Age will be extensively circulated in foreign countries with a view to making dealers and consumers aware of the nature and extent of American progress in the departments of manufacture we represent, and we shall be glad to receive early and full information of all new products and improvements in manufactures of metals, hardware, &c.

Our Trade with Italy.

There is no nation in Europe whose moral and material development has of late years made such extraordinary strides, in conse quence of political unification and harmony as the kingdom of Italy, and she now ranks on a par with France and Germany in nearly everything constituting national greatness With a population of 26,801,154, Italy now possesses 4767 miles of railroad, or about 17 miles per 100,000 inhabitants. Of merchant craft she navigates under her flag 4402 sailing vessels with a tonnage of 1,296,985, and 110 steamers with 95,309 tons. The sailing vessel tonnage of Italy in 1872 was 1,058 000; in 1875 it had increased to 1,222,000 in 1876 to 1,292,000, and in 1877 to 1,297, 000. Of telegraphs in operation, Italy in 1875 counted 12,976 miles of lines and 45,308 miles of wires. There were 1726 offices with 1913 instruments and 4302 operators. The number of messages sent was 5,209,000, or 191 messages to the 1000 inhabitants, while the post offices forwarded 4500 letters per 1000 inhabitants.

The following comparison will suffice to show the relative importance of Italian trade:

		- 1	TOT	AL TRA	DE.			
England	 		. \$2.	1877.	1.645	8:	187	6.
France	 		. 3	448,13	8,200		,512,7	91,400
From th						88		

a comparatively limited trade; but this is not by any means owing to a lack of activity and enterprise. England and France are the richest countries of Europe, and both own large and prosperous colonies, while Italy has none of the latter, and has just commenced to rise from a long period of political chaos, partial anarchy and impover

Still the revenue of all sorts which the government collected during the first II months of 1877 amounted to no less than \$251,352,834, showing an excess over the corresponding period of 1876 of \$26,340,900 and this during a time of great industrial stagnation and short crops. Half of the silk spinners of Italy were compelled to stop work last year, and one quarter of the silk looms are in the same position. The woolen industry in Italy in 1877 was in no better condition. On the other hand, cotton spinning has suffered less severely, but the dooms have not prospered, and cotton printing struggles with difficulty against German mpetition.

Since 1873 the Italian iron and steel works have limited their production almost exclusively to metal of high quality. In steel making, the Martin-Siemens and Pernot rocesses have of late been more generally introduced, and it is hoped that Italy will soon occupy a more important position in this trade. Ship building in Liguria has declined from 90,000 tons to 50,000 per annum, owing to the general depression.

Considering all this, it must be admitted that Italy has done wonders in collecting a revenue largely in excess of 1876, and it is evident that the resources of her people are varied. The government tax on real estate during the 11 months amounted to no less than \$30,164,097, being \$66,974 in excess of the corresponding period of 1876; the income tax produced \$27,348,586, an increase of \$880,517; the duties, \$18,400,332, an increase of \$84,633; the stamp tax, \$24,882,-\$1,878,170 tobacco "regie," \$26,589,630, an increase of \$1,142,065. The only decrease of note is in the lottery tax, which shows a decline of \$752,899—a most creditable feature.

The following shows the foreign trade of Italy in 1877 as compared with 1876:

Import	#876. \$265,427,466 943,385,88
93394709	243,303,00

Total \$424,165,317 \$508,812,343 This shows a total decrease of 17 per cent... the import being 13 per cent. and the export 20 per cent. less. The following shows the details of the Italian trade movement in millions of dollars :

Management of the second of				
	-Im	port.	Exp	ort
1	877.	1876.	1877.	1876.
Liquors and oil Colonial and chemical	32.4	9-4	34.0	31.7
products	31.8	32.8	11.0	11.0
Fruit and vegetables	3.0	2.5	13.0	34.0
Butter, grease & cheese	5.0	5.6	9-5	0.0
Fish	4.8	4.1	0.5	0.4
Cattle	9.1	3.5	13.0	8.5
Hides and leather	9.0	9-7	3.0	2.8
Hemp, flax and manuf	6.0	6.6	7-4	8.7
Cotton and manufact's.	31.4	32.8	1.0	0,8
Wool	18.0	19.2	2.8	8.3
	22.4	46.3	50.2	97.1
Grain	18.6	21.6	14.0	15.0
Wood and woodenware.	20.3	8.9	4-3	5.0
Paper and books Fancy goods and other	1.5	1.5	1.3	1.0
merchandise	19.2	18.4	23.1	30.0
Metals and manufact's	15.6	34.7	4-5	4.0
Gold, silver and jewelry.	4.1	5.8	4.9	2.4
	10.2	12.4	8.2	9-5
China and glassware	2.9	3-5	3.1	8.0
Tobacco	3-3	3-5 6.8	9.2	0.2
	-	-	-	_

....230.8 265.4 193.3 243.4 The greatest falling off in any one article the student of foreign trade movements can The import of grain has also diminished, learn much that could be gathered only by owing to the rise in prices. In the import

a laborious search of statistics not easy of of coal, colonial produce, cattle and tobacco as well as in textiles, there has been less activity, due to the less flourishing condition of the laboring classes. In the export of olive oil alone there has been a decrease of \$6,000, 000, and the vintage of 1876 having been a partial failure, the export of wine also de creased materially in 1877. The same may be said with respect to the almond crop and export. On the other hand, the cattle export shows a notable increase, mostly to France, which country now consumes enor mous quantities of Italian cattle.

The iron of the island of Elba, the lead and spelter of Sardinia, and the manganese of Tuscany have been exported in increased quantities. Italy has exported less eggs than usual: still the amount which left the country figures up some \$4,000,000. One of the noteworthy features of an increase o import has been in sugar, of which Italy took 6 per cent. more than in 1876, although the duty was nearly doubled.

The articles which we principally draw from Italy are marble, fruit, sulphur, certain drugs, and rags. The following has been the trade between Italy and the United States during the past 14 years in thousands of dollars:

donars :	_	-	-	
Fiscal years.	Our Import.	Domestic Export.	Foreign Export.	Total
1864	3,125	3,159	27	6,31
1865	3,201	6,065	44	8,31
1866	4,283	4,934	4	9,22
1867	5,289	4,903	57	10,24
1868		5,434	24	9,96
1869	6,210	5,683	23	11,91
1870	6,642	6,345	130	13.11
1871	7-444	6,090	69	13,60
1872	7.592	5-439	13	13,04
1873	7,975	7,241	55	25,27
1874	8,499	8,379	4	16,88
1875	0,190	7,227	3	16,41
1876	7,629	7,770	17	15,41
1877		8,484	10	15,59
Grand total		87,153	479	175,32

It will be seen that we have imported from Italy during the above period precisely as much as we exported to that country, and that our general trade with the Peninsula has doubled since the war.

The following are the principal articles of domestic production which we exported to Italy during the fiscal year ended June 30,

1877:	
Indian corn	
Cotton	1,334,71
Cotton goods	2,850
Hides and skins	
Machinery	1,73
Leather	1,100
Naval stores and petroleum	2,520,33
Cotton seed oil	438.02
Preserved meats	2,650
Sewing machines	1,28
Sperm	7.55
Tallow	77.020
Leaf Tobacco	3,734,030
Clothing	1.47
Lumber and shooks	x68, x8,
Timber	28,860
Furniture	5,550
Other goods	78,530
Total	\$8,484,400
To above someone Abot Table 4-1	

It thus appears that Italy takes from u scarcely anything beyond raw produce. Yet we feel the most positive conviction that we can furnish Italy to mutual advantage leather, hardware, all sorts of machinery and woodenware, if we will but take the pains of thoroughly investigating the field now monopolized by England and the sur-rounding Continental nations.

NGLAND'S EXPORT OF IRON, STEEL AND MACHINERY

TO ITALY		
Bar, angle, &c., iron Hoops, armor plates, &c Steam engines Iron rails Steel rails	1877. \$857,555 573,160 783,525 83,990 163,880	1876, \$987,290 583,565 756,365 544,965 97,600
Total	2,462,110	\$2,969,785

Our facilities for trade with Italy are prac tically as good as those enjoyed by English exporters, for the steamers leaving Ameri can ports regularly for the western ports of the Peninsula and Sicily, touching at Gibraltar, Malaga, &c., make the trip almost as fast from New York as they can from London and Liverpool, and the difference in

freight, if any, cannot be great. If we are to have another international exposition within the next few years, it is pretty certain that it will be held in Rome but in the meantime our manufacturers will do well to examine closely the Italian exhibit at Paris, since it will probably be fruitful in aluable suggestions to them. the Italians, on visiting the display we shall make at Paris, will have an opportunity to examine our goods, and valuable connections will no doubt spring from it. The beginnings of such a trade should be heartily encouraged. Italy is a kingdom which has a great industrial and commercial future, and we cannot afford to neglect any opportunities of trade which may enable us to find there a market for our manufactures.

Railroads and Passengers.

It is beginning to be pretty well understood that however arbitrary the rules which a railroad company may print upon their tickets, the passenger who purchases a ticket does not thereby surrender any of his own rights, and does not by the purchase and use of a ticket enter into any contract with the company to the prejudice of his rights under the common law. The Railway Age has lately been at the trouble of compiling the decisions of the courts in suits of passengers to recover damages for ejectment from trains, and draws therefrom the following conclusions, which are of interest to business men and commercial travelers, for whose information we reproduce them:

Information we reproduce them:

1. A railroad company may make reasonable regulations for the carriage of passengers. Conversely, a passenger cannot be compelled to obey regulation of an unreasonable nature. Whether a regulation be reasonable or not must in case of controversy be determined by the courts.

2. A passenger must exhibit his ticket when so requested by the conductor, or he may be removed from the car.

3. A passenger must surrender his ticket when as it now exists,

demanded by the conductor, or he may be ejected, but if the conductor takes the ticket before arriving at destination, he must give the passenger a conductor's check or some other evidence of his right to ride.

4. It seems that if a passenger persists in his refusal to pay fare until actually ejected, he forfeits his common-law right to reinter the car, even though he tender the demanded fare.

5. A railroad company has the right to make a moderate discrimination in the rate of fare between those who purchase tickets and those who do not. If a passenger has not procured a ticket he must pay the additional rate or be removed from the train.

6. A railroad company must afford reasonable facilities for procuring tickets, but the ticket office need not be kept open after the advertised time for the train to depart.

The decisions of the courts fully sustain

The decisions of the courts fully sustain

these conclusions, which show that a passenger has all the rights which he needs and that he can compel the railroads to respect

Tariff Tinkering.

No man of business, whatever his views n subjects belonging to the domain of political economy, can have failed to learn from the experiences of the past three years the evils entailed upon the productive and distributive industries of the country by the tariff tinkering of successive Cong The fact that the newly constituted Ways and Means Committee of each reorganized House of Representatives is quite certain to attack the tariff and propose more or less sweeping changes, and that the changes may receive the favorable consideration of Congress, adds an element of uncertainty to all business operations which cannot but retard national progress and discourage enterprise. When men of capital know upon what to base their calculations, they ready to proceed with any undertaking which gives promise of success; when the probability exists of changes in the tariff which may alter our whole revenue system and compel a readjustment of taxation capitalists become timid and capital shrinks from investments which may be unfavorably affected by such changes. The agitation of the tariff question, growing out of the action of Mr. Wood in preparing a new scheme of imposts, has already done the country incalculable injury, and we have no ssurance, whatever the fate of Mr. Wood's bill, that the same cause of disturbance will not arise annually so long as we have a tariff to tinker with.

For the protection of the business interests of the country against the evil consequences of continuous and unnecessary meddling with the tariff, several plans have been proposed. One of these contemplates the pointment by the President of a commission. advisory in character, to take testimony and supply Congress with information. Another proposes the establishment of a national department of commerce, or a bureau of trade. which shall collect and classify information bearing upon industry and commerce, and supply the Ways and Means Committee with the facts and statistics which its members have neither time nor opportunity to gather. Either system might be attended with benefit if practically applied under good management, but for immunity from the evils of tariff tinkering we are, unfortunately, dependent upon the good sense of Congress. That this is an uncertain and unsatisfactory dependence is the more to be regretted.

It may be stated as a correct principle that, however defective the tariff system of a country may be, when that system is fairly estab lished and in operation it cannot be swept aside and replaced by another system constructed on a different plan without giving rise to serious and far-reaching evils. Such sweeping changes affect a countless number and variety of inter-related trades and industries, compelling a sudden readjustment to a new basis which cannot but be attended with a shock to the material interests of the whole people. On the other hand it is possible to rearrange the tariff when necessary without causing serious general disturbance. The natural ambition of the newly appointed chairmen of the Ways and Means Committee to signalize undertaking the work of revising the tariff as a whole, has been repeatedly rebuked by the rejection of their bills by the House or Senate; but the sense of Congress on this subject should be expressed in other ways more likely to be understood. It requires very little practical statesmanship to discover that in four or five years the tariff could be changed without shock, if such changes are properly managed, and with so gradual a readjustment to the new conditions that the worst effects of such a change would never be felt. Accepting it as a fact that for the present the tendencies of tariff legislation are opposed to the principle of protection, it is certainly not too much to expect that the gentlemen who are bent upon abandoning the policy which has been attended with so much benefit to the country, shall have some regard for the public interest in choosing the method of carrying their ideas into effect.

It is considered probable that the bankrupt law will be repealed before the close of the present session of Congress. Memorials praying for the repeal of the bill are pouring in from all parts of the country, and the law has no strong support even in the East. The Senate Judiciary Committee have already reported a bill to repeal the act of 1867 and all subsequent amendments. It is provided that all cases pending in the district courts of the United States and docketed on or before the 20th day of October, 1877, may be tried and determined under the law

American Interests in the North of

In our issue of March 7th we published a short note concerning the introduction of American machinery into Denmark. Since then we have obtained a large amount of additional information from the gentleman to whom we were indebted for the facts previously published. This gentleman has een in Denmark for some time, engaged in the introduction and erection of American machinery, and has carefully studied the wants of the country, its peculiarities, and the openings for the introduction of American manufactures. For this work he is especially fitted, both by education and experience, being a practical man and having had much experience with American machinery and manufactures in South American countries. While in Denmark, Sweden, Norway and Schleswig-Holstein he paid particular attention to the manufactured articles used, and the openings for the introduction of new styles, &c. Denmark and Schleswig are essentially farming countries, and manufacture very little. Hand labor is almost exclusively employed in the few primitive branches of industry which are carried on. The hardware, agricultural implements and tools generally, as well as articles of domestic use, are roughly made, and in many instances we should think them of bad design; but our manufacturers must not be misled by the notion that our designs, styles and patterns have but to be seen to sell. People of all countries have not only their own ideas in regard to the tools use, but they have their own which very frequently depend needs upon local circumstances. Habit also is strong. For example, we may take the American pail, which is light, strong, durable and cheap, and handsome withal. Our informant found it useless to attempt to sell these pails in Denmark. He found, however, that it was perfectly feasible to take over the American pail machinery and set it in operation, turning out pails of the Danish patterns. Of course some improvement could be made in style and workmanship, but the pails are still Danish. The same is true of many other classes of our manufactures. We can suggest improvements upon Danish patterns, but we cannot in all cases send goods abroad just as we turn them out for ourselves. There are, in fact, very few of the American patterns that suit the Danish market.

In regard to pail machinery and pail making, it is an interesting fact to note that a large proportion of the pails made in England are made by hand, and we can find traces of but one set of pail-making machines in Great Britain, and that was sent over from Winchendon, Mass., some 25 years ago. In this country no pails have been made by hand for the last 35 years.

The lesson to be learned by our manufacturers is a double one. We must not always gauge the wants of foreign markets by the lemands of our own. The wants of such a country as Denmark must be carefully studied, and our exports adapted to these wants. The second point is that a personal representative of the exporter or manufacturer should canvass the ground, attend to the introduction of the goods and gather such information as may be useful to the manufacturer-packing, shipment, &c., &c. In some cases this can be trusted to a resident agent or firm, but such an agent should know all about the manufactures and trade of both countries. In any case the manufacturer will be benefited by a personal knowledge of the country.

Among the articles which may, we are informed, be introduced with profit into the north of Europe are clothes-wringers, mangles, feed and flour mills, and axes; the latter are already in the market, but they are all imported by way of England and are, consequently, expensive. With modifications to suit the wants of the country, their accession to a little brief authority by we can also send forks, spades, shovels, hoes, rakes and hatchets; these are all of rough and clumsy pattern, and are mostly brought from England. One of the principal Danish hardware manufactories makes shovels, toys, hatchets, andirons, spades, &c., but of very crude, primitive design, and without the use of any machinery. Horse-shoe nails ought to find a market when the value of the American product is known. Carriage irons are all made by hand, often welded up from scrap, in a most primitive way. If their special patterns were made, as well as blanks, of the right kind, they might be introduced to advantage. Our iron axles and steel carriage springs would probably find a good market, the former not being used, while the latter are hand-made exclusively. The locks now used are of the old wooden pattern, which went out of use in this country years ago; it would seem, therefore, that many styles of American locks could be sold there. The amount of hand labor employed in the few industries carried on is simply astonishing. In one shop our informant saw Singer's sewing machines in process of manufacture, and with the exception of the shuttle and one or two other parts which were purchased ready made, the whole machine was hand made.

There is one fact in connection with the introduction of our manufactures that is favorable to us. Americans have a very good reputation. Our manufactures are believed to be always up to sample, and in opening a case the Danish importer does not expect to find tha the sample was a picked article and the lot manufactured to sell. In this respect we have the reputation of being far ahead of England, since English goods are rarely up to sample. The people are favorably inclined toward our country, and the American does not have those prejudices to overcome which are sometimes so seri-

ously in the way.

There are no decent cook stoves in either Denmark, Sweden or Norway; those in use are somewhat upon the English plan, but even more crude in design, inefficient in operation and wasteful of fuel than the English. In the cities and large towns English coal is the fuel used, while in the country beech wood and peat are chiefly burned. Stoves, however, cannot be introduced by simply sending them over to an agent. They must be popularized by personal effort, and the people must be taught how to use them. With the introduction of our stoves might go that of anthracite coal. This could probably be burned to advantage in their grates and a respectable traffic in it be obtained

Builders' hardware, if made to accommo date their special uses, would be very easily sold. The difference between their patterns and ours can be judged from a single item of windows. There the sashes are hung on hinges and swing inward—the hinges being fastened by bolts which go clear through the wood, and, if we understand our informant correctly, the hinge which embraces both sides of the sash is secured by riveting the bolt. Manifestly the swinging sash precludes the possibility of selling much variety of window hardware adapted for use with sliding sashes.

Carpenters' tools can find a market if sent direct, but at present they are excluded from use owing to their extremely high price. The few that come into the country are much liked, but as they come by way of London and Hamburg, the prices put them beyond the reach of the workman, who cannot afford to pay three profits on them. Braces, bits, augers, &c., are among the tools which are known but which do not sell for these reasons. The plows used are of the English pattern, long shares with easy lines, admirably adapted to turning over a deep, rich, soft soil. These plows are the same pattern that beat ours in the competition of 1851 in London. While they would be utterly useless in breaking up the tough ground of our Western lands or steering among the stones and stumps of New England, they are just what is wanted to turn over, with a minimum expenditure of power, the soft mould of Danish farms. In this we must follow the English pattern. Agricultural engines of from 12 to 25 horsepower are in demand; but here we must give our readers a word of warning in regard to the method of rating engines. The few American engines in the country work well, are economical and give good satisfaction, but they are considered of small power as compared with the English of the same rated power. The reason for this is quite evident. When an American sells a 6 horse-power engine he sells one which, with the ordinary working pressure and the usual number of revolutions per minute, will develop 6 horsepower of 33,000 foot pounds per minute and have a reasonable margin to spare. On the other hand, when the Englishman sells a 6 horse-power engine he sells one which, according to James Watt's old rule, assuming a very small pressure and a fixed piston speed per minute, would give the required 6 horsepower. As the pressure is many times that assumed, and the speed generally twice as great, the actual horse-power is usually somewhat over three times as great as the "nominal" or selling horse-power. In selling engines, therefore, where the English "nominal horse power" is used, this fact should be kept in mind. It is a noticeable feature, in connection with American portable engines, that in Denmark they have the reputation of standing up to their work well, the boilers being easily able to furnish the engine all the steam needed at the regular pressure at which the engine was designed to work. On the other hand, the English engines are reported as deficient in boiler power, the pressure running in one case from 60 pounds per square inch down to 25, and staying there when the speed of the engine was kept constant. This does very much toward equalizing the difference between the nominal and actual horse-power. Want of boiler power seems to be a pretty general failing with the English agricultural engines, and ample boiler power a characteristic of the American. The sizes of engines in demand range from 6-inch diameter of cylinder and 12-inch stroke to 8-inch diameter of cylinder and 14-inch stroke.

Our manufacturers, in sending tools and small machines to foreign countries either upon orders or for exhibition, should be upon their guard against imitators. Patents and patent rights are so hedged in by laws and customs, that the only practical protection is to be able to export more cheaply than the articles can be made abroad. A case in point is that of Walker's jig saw. One of these was ordered by a firm in Chemnitz as a sample, and was sent out in due time. No subse-quent orders were received, as the firm who gave the order were manufacturers and immediately began the manufacture of as good an imitation of the saw as they were able to make. This they are placing upon the European market, and it is now for sale all over Germany. The only way of meetall over Germany. The only way of meeting competition of this kind is to be able to sell a better article at a lower price than that produced by the imitators, and at the same ne taking care to fill the market. Patents will hardly protect abroad, and dependence must be exclusively upon business competi-

The Wood Tariff Bill.

The fate of the Wood tariff bill will very oon be decided. Very early in its caree in the house a test vote will be taken which will indicate the feeling of that body as to its passage. There is no doubt that the most strenuous efforts will be made by its friends to pass it. Almost any concession will be agreed to and almost any increase from the rates at first proposed conceded if such increase will still leave a slight reduc tion in the tariff. Even some of the best friends of protection who are members of the dominant party in the House, will vote for the bill if the changes are only slight.

Here is where the great danger is. If the ill is passed even in a modified form, the eason will be purely a political one. It will not be for revenue, nor principle, nor to better the condition of the country, but olely for use at the hustings in certain portions of the country. This statement is based on the actual assertion of prominent members of Congress. We still believe that the good sense of Congress, even of the House, will lead them to reject the proposed bill: but the most earnest efforts will be made to push it through, and equally strong efforts will be needed to defeat it. No man, manufacturer or workman, who has an in terest in the continuance of protection should be idle, but should let his efforts be directed to the member from his district.

The following is said to be the shape in which the provisions relating to metals stand in the revised bill which the House will be called upon to consider:

SCHEDULE E,-METALS.

SCHEDULE E.—METALS.

Iron in pigs, \$5 perton.
Iron ore, 50 cents per ton, and scrap iron, wrought, \$5 per ton.
Scrap iron, cast, \$3 per ton.
Scrap steet, \$5 per ton.
Boiler and other plate iron and sheet iron, comnon or black, not thinner than No. 20 wire gauge, cent per pound; thinner than No. 20 and not hinner than No. 25 and not hinner than No. 25 wire gauge, 1% cent per pound; thinner than No. 25 wire gauge, 1% cent per pound; thinner than No. 25 wire gauge, 1% cent per pound.

er pound. Russia polished sheet iron, 2½ cents per pound. Taggers' iron, 1 cent per pound. Smooth or polished sheet iron, by whatever name esignated, not otherwise provided for, 1½ cent

Taggers iron, i cent per pound.

Smooth or polished sheet iron, by whatever name designated, not otherwise provided for, 1½ cent per pound.

All band, hoop and scroll iron from ½ to 6 inches in width, not thinner than ¾ of an inch, i cent per pound. All band, hoop and scroll iron from ½ to 6 inches wide, under ½ of an inch in thickness and not thinner than No. 20 wire gauge, including cotton ties and cotton ties strips, 1½ cent per pound. All band, hoop and scroll iron thinner than No. 20 wire gauge, 1½ cent per pound.

Stele railway bars, ¾ cent per pound.

Stele railway bars, ¾ cent per pound.

Stele railway bars, ½ cent per pound.

Stele railway bars, ½ cent per pound.

Stele railway bars, ½ cent per pound, inches or over in length, 5 cents per pound; inder i inch in length not cents per pound.

Manufactures of iron of every description, not otherwise provided for, made up in whole or in part of iron or of which iron is the component of chief value, 35 per centum ad valorem. On steel made by the crucible, Bessemer or open hearth, or by any process without regard to the percentage of carbon contained therein, or of whatever form or description not otherwise herein provided for, 2½ cents per pound. On all other steel, including steel wire, steel wire rope and steel commercially known as crinoline, corset and hot steel wire, and all manufactures of steel made in whole or in part of steel, not otherwise provided for, 35 per cent. ad valorem. Provided, that no allowance or reduction of duties for partial loss or damage shall be hereafter made in consequence of rust of iron or steel, or upon the manufactures of iron or steel, even upon the manufactures of iron or steel, even upon the manufactures of iron or steel, even upon the manufactured in blocks or pigs, 1½ cent per pound.

Lead in sheets, pipes or shot, 2½ cents per pound.

Zinc, spelter, tutenegue, in sheets, 2¼ cents per pound.

Zinc ent per pound: in bars, pigs or blocks, and

pound.

Tin in plates or sheets, terne and taggers' tin, 17-10 cent per pound; in bars, pigs or blocks, and grain tin, 10 per centum ad valorem.

Iron and tin plates galvanized or coated with any metal by electric batteries, 1% cent per pound.

ound.

Iron and tin plates galvanized or coated with any metal otherwise than by electric batteries,

Iron and tin plates galvanized or coated with any metal otherwise than by electric batteries, 2 cents per pound.

Copper in ores, matte, or regulus, and in all forms in which the copper is not advanced to the metallic state, 1 cent per pound on the fine copper contained (fire assay); any gold or silver accruing thereon to be free of duty.

Copper in pigs, bars, slabs, precipitated copper and in all forms in which the copper is metallic, of below 65 per cent, purity (fire assay), 2 cents per pound on the fine copper contained.

Refined copper of commercial purity, or 98 per cent, and upward, in ingots, cakes, tile, bars, shot, and all forms not rolled, 3 cents per pound.

On rolled copper in sheets, plates, bolts or bars, and hammered copper, 5 cents per pound, except sheathing copper in sheets of 48 inches long and 14 inches wide, from 14 to 24 ounces per square foot, which shall be 3 cents per pound.

Yellow sheathing metal and yellow metal bolts of which the component part of chief value is copper shall be deemed manufactures of copper, and shall pay a duty of 35 per cent, ad valorem.

On articles manufactured of copper, or in which copper is the component of chief value, not otherwise provided for, 35 per cent, ad valorem.

On old copper fit only to remelt, two cents per pound.

On old copper fit only to remelt, two cents per

or oid copper fit only to remelt, two cents per pound.
Gold leaf \$\frac{2}{5}\$ per package of \$500 leaves, and in like proportion for any number of leaves. Silver leaf, \$50 cents per package of \$500 leaves and in like proportion for any number of leaves.
Dutch and bronze metal in leaf, 10 per centum ad valorem.
Argentine, alabata or German silver, unmanufactured, 25 per centum ad valorem.
Brass in bar or pigs and oid brass fit only to be remanufactured, to per centum ad valorem.
Articles not otherwise provided for, made of gold, silver, German silver, or of which either of these metals shall be a component part of chief value, 40 per centum ad valorem.
Silver-plated metal in sheets or other form 25 per centum ad valorem.
Manufactures, articles, vessels and wares not otherwise provided for of brass, iron, lead, pewter and tin or other metal (except gold, silver and platina) or of which either of these metals shall be the component part of chief value, 30 per centum ad valorum.
Metals unmanufactured, not otherwise provided for, 20 per centum ad valorem.
Antimony, crude and regulus of, three-quarters

for, 20 per centum ad valorem.

Antimony, crude and regulus of, three-quarters of one cent per pound.

This shows that some of the most serious blunders of the first draft have been noted and in part corrected. It does not yet appear, however, that such changes as are now proposed are either desirable or necessary, and we doubt if the popular opposition will be mollified by the concessions which have been made by the committee.

Exhibitors at Paris whose goods were sent by the Supply, will be glad to hear of the safe arrival of that vessel at Havre The Constellation sailed yesterday heavily

rest of the freight still at the Navy Yard, amounting to some 700 tons, is to be shipped by the regular merchant line of French steamers. A part of the \$150,000 appropriteamers. A part of the \$150,000 appropriated by Congress for the exhibition of American goods will be used to pay the freight of the goods now awaiting transpor-

The telephone promises to be an invalu able boon to the Chinese, since they have no alphabet to use in telegraphing. There are already in use in China 500 miles of tele phone wires, and the outlook for a rapid extension of the system is favorable

Scientific and Technical Notes.

The Russian Journal of Artillery states that an Austrian manufacturer has recently arrived at St Petersburg, and has offered to sell to the Russian Government the secret of the fabrication of

A NEW EXPLOSIVE

This substance, which is called "heracline, is, the inventor asserts, far superior to or-dinary gunpowder or dynamite for blasting or mining purposes, and when prepared in special manner may also be employed wit advantage as a bursting charge for shells. Used as a charge for mines, the new ex-plosive is said to act with a much greater energy, and produce a much greater effect, than the same quantity of powder; and, as both its density and cost of manufacture are considerably less, a saving of from 40 to 45 per cent will be effected by employing it. It is also the least dangerous of any explosive, as it cannot be exploded either by a blow or by friction, but only by bringing a flame into contract with it in a closed vessel. may therefore be ignited either by elec-tricity or by Bickford's fuse; but the detonating fuse required to explode dyna-mite with effect is not wanted. Compared with this latter substance, heracline can be prepared at one-third the cost, and the effect produced by equal quantities of the two compounds is said to be very nearly the same.

The actual cost of preparing the heracline in Austria, where the inventor has already manufactured and patented it, is given at 3 florins (13.59c.) per 100 lbs. and the patente now offers to make a sufficient quantity for the Russian Government to carry out a series of experiments, finding the necessary sub-stances himself, if the Russian authorities stances himself, if the Russian authorities will place one of its powder mills at his disposal. For the present the proposal has been declined, but 250 kilograms of the explosive have been ordered to enable the Russian engineers to make experiments with it in mining operations, and also as a charge for hollow projectiles.

A Berlin mechanic has contrived an in

SELF-ACTING DOUBLE HINGE

for storm doors, double doors, &c., openin in one or both directions, the device allow ing the door to move easily and noiselessly, and also to be fixed at an angle of a little more than 90 degrees, if desired, without any fastening. The door moves on a pivot at the top and bottom, the rear end at the ing the door to move easily and noiselessly at the top and bottom, the rear end at the bottom resting in a shoe, to which it is firmly screwed, and which has the pivot attached to it beneath, and also a small wheel a little in front of the pivot. Now, as the door is opened, this small wheel moves upon an arm of a lever, the other arm of which is in contact with the end of an almost circular hori zontal spring, which carries the door back to its normal position as soon as it is released. the power being greatest just when the door is released, and diminishing in effect until it is completely closed. The spring, lever, &c., are inclosed in a cast-iron box, covered with a brass plate, screwed to it, countersunk to the level of the floor. The upper socket, set in the casing of the door, is attached to a plate, which has a slit and set-screw, so that it can be moved forward or backward slightly, and thus be adjusted to any inaccuracies in hanging the door. The upper pivot is let into the top of the door and rests apon one end of the lever, also let into the top of the door, and is forced up into the socket by means of a screw which acts on the other end of the lever, nearer the front of the door, thus rendering it easy to hang

Much interest has been excited of late by the discovery of an alarming prevalence of COLOR BLINDNESS AMONG RAILWAY

OPERATIVES, to which is attributed many of the accidents growing out of inability to distinguish the color of signals. Mr. Thos. T. Nelson, optician, of Chicago, makes the following contribution to the literature of the discus sion: "From the first I have been accus-tomed to unite with the subject of color blindness that of quickness of perception, as I found in my experiments that very many not actually color blind were practically so from the sluggishness of their perceptive faculties, and I also found some who were unable to distinguish colors at certain dis-tances, varying more or less in individuals, as well as some who were color blind at night and not in daylight, and vice versa. I have also considered with these defects, under the one general head, the optical defect called 'Myopia' generally known as 'near-sighted-ness,' and another defect called 'Astig-matism,' both or either of which exist to a greater or less degree in a large percent age of population, and in a majority of case spected. Tablets and charts are not entirely practical except for day tests, since the results obtained with reflected light are quite different from those obtained when direct or transmitted light is used, and in practice the most important test in railway service is certainly that which insures the greatest safety at night. There are other color blindness may be acquired, but in the question for further investigation. My facili-ties for determining to any certainty just what part defective vision has had in rail-The Constellation sailed yesterday heavily freighted, and, with the exception of the Wyoming, is the last vessel that will be sent by the government on this mission. The total part detective vision has had in rail-that, with some changes in the fan, the made to perform as intended. As is well known, one great difficulty in the subject of accidents not being conducive by the government on this mission. The total rail-that, with some changes in the fan, the made to perform as intended. As is well known, one great difficulty in the subject of accidents not being conducive balloon navigation is that the aeronaut is defield for exportation is open to American iron manufacture. An extended the reticence of railroad companies upon the subject of accidents not being conducive balloon navigation is that the aeronaut is defield for exportation is open to American point.

ness, where defective vision could enter as an element investigation would show that it was the prime cause of the accident."

The first experiment with

THE ELECTRIC LIGHT

in Berlin was made recently in the new synagogue in Oranienburg street, before a large crowd of people. In the courtyard of the building a stationary apparatus furnished the light, which was conducted over the roof into two of the five round windows, and supervision of the Ordnance Board whence the light streamed down on the synagogue below. The effect was astonishing. The light was so brilliant that it illuminated the gallery and the remotest corners of the edifice. The splendor of the light was vivid, but not offensive to the is as follows: Gas, per hour, \$15; the maneuvering. Although as yet the firings electric light, \$1 for the same time. The apparatus costs several thousand marks. The synagogue was also lit up outside by the against ironclads it is equal, if not superior, leaving the synagogue was also lit up outside by the against ironclads it is equal, if not superior,

Mr. Arthur Fell writes to the London Times from Madrid, under date of February: "I am surprised to find that the Puerto del Sol, the principal place at Madrid, Italian 12.6 has 252 inches, while the Amerisi lighted by electric light in a manner which, so far as the lighting is concerned, is most successful. This place is not like anything in London, but is something like the Place Vendome at Paris. The lights are six of the maximum powder charges, as has lobes of opal glass, in sets of three, on that there must be a full moon shining. The moon was, however, not yet up, and the velocities being greater for correspondcause which made all the shop gaslights look
poor red flames was very clear. These six
globes were, all of them, of equal brilliancy,
and emitted a soft, pale, penetrating light, use of the adopted system of projecand emitted a soft, pale, penetrating light, as steady as an argand flame. I found that about 30 or 40 yards from the lights I could read small print easily; still the lights give no painful glare whatever, but really formed charming objects, which it was difficult to the globes, at about 30 yards, seemed like a full moon, and gave about as much light. It seems strange that a country which we consider so backward as Spain should be experimenting with this light, and with such success, while London has not yet even tried

After long use organ pipes become brittle and fall to pieces, doubtless because of the MOLECULAR CHANGE EFFCTED BY VIBRATION The impurity of the metal does not appear to be the cause. In 1872 Oudenmans called attention to the fact that plates of pure tin containing only 0.3 per cent. of lead had, during their conveyance from Rotterdam to Moscow in very cold weather, broken into very small fragments. At Spandau, more recently, similar disaggregation was observed and noted by Dr. Petri. A large quantity of tin plate acquired, first laminar exfoliations, and then began to crumble. A large quantity of block tin also became affected in the same way as the tin plates, but to a less degree. The warehouses in but to a less degree. which the tin was stored were dry, and the cold was not severe. Repeated little shocks, with frequent strong variations of temperature, are usually supposed to be sufficient to account for the crumbling, but it would appear that there must be other causes which remain to be discovered. Dr. Petri tested the tin which had disaggregated at Spandau. but it contained no phosphorus, no sulphur, no oxide of tin, and only the faintest traces of any other foreign metal.

At Bridgeport a few days ago an exhibi on was given of

A NEW FLYING MACHINE,

invented by C. F. Ritchel, of Corry, Penn. Unlike many aërial machines, this one is not shaped like a bird, nor has it any wings. It consists of a large bag of cylindrical form It consists of a large bag of cylindrical form inflated with hydrogen, and a car provided with attachment designed to control the elevation and descent of the bag and to direct its course. The bag is 24 feet long and 12 feet in diameter, and requires 3000 feet of gas for its inflation. The raising and steering apparatus underneath has a framework made of brass tubing, and is provided with a seat for the passenger. provided with a seat for the passenger. Directly in front of the seat is a crank which five blades, set spirally, and can be made to rotate at the rate of 3000 revolutions per ninute. This fan furnishes, or is intended minute. This fan furnishes, or is intended to furnish, the lifting power which consti-tutes the novelty and value of the invention, and by reversing the motion depresses the air ship on the same principle as it raises it. At the end of the framework of the car, some 10 or 12 feet distant from the passenger, is another similar fan, which works at an angle with the air ship, and is designed to turn it in any direction desired. It may be stated that both fans work in the air the same principle that the Fowler steering and propelling apparatus works in the water. The exhibition was given in a large hall, a boy operating the cranks. The boy commenced to turn the crank, the fan whizzed fiercely, and the bag rose three or four feet from the floor. It refused to go any higher, however, but after ascending slightly sank back toward the floor at each trial. Then the steering fan was set in motion, with about the same degree of success. The attendants ascribing the partial failure of the questions constantly arising, among which experiments to the boy who engineered the is that of the circumstances under which machine, another boy was substituted. He succeeded considerably better than the first, \$446,322; absence of records of individual cases kept for a period of time, this must remain a question for further investigation. My facilities for determining to any certainty just what rest defeative research to the common to the com that, with some changes in the fan, the ma-

A New American Piece of Heavy Ordnance.

The Washington Herald says: The Ordnance Department of the Army has con-structed a large rifled gun, weighing about 90,000 pounds, with a caliber of 12.25 inches, which is now undergoing proof at the Sandy So far the limited firings have developed the most satisfactory results. The gun is of cast iron, lined with a coiled wrought-iron tube, with a length of bore of 227 inches, and is mounted on a carriage of late design, with all the modern improvements to conelectric light, bringing it out as bright as to any gun of the same caliber in any serday, and producing a most magical effect.

Gas burned alongside of the electric light to any superiority over others in this looked pale, and was, as it were, thrown into the shade. vices the English 12-inch wrought iron gun has a length of bore of 198 inches; the Krupp caliber 12.008, has 222.5 inches; the of the maximum powder charges, as has been practically proved by the absence amp posts, which are about twice as tall as any unconsumed grains of powder after the e usually used for gas. The first idea discharge. The powders used have given struck me on entering the place was marked superiorities in velocities and pressures over those used in foreign services tiles, no erosion or guttering are apparent, and perfect rotation has resulted from the rifling and sabot employed; and this, with the absence of any stripping, has given that accuracy of flight so necessary keep one's eyes off. The moon soon after-ward arose, and it was clear how wonder-fully similar the two lights were. Each of compare most favorably with those of foreign guns, although the difference in charges and weights of projectiles do not, so far, admit of a complete comparison, but enough is known to show that this gun has an equal, if not a greater, capacity for work of any of the foreign service rifles of like size. For instance, the English 25-ton gun has given less energy by, say, 450 foot tons, with 85 pounds of powder and 600-pound projectile, than the American; and the Krupp, with 88 pounds of powder and 664 pounds of projectile, 1254 foot tons less; while the Italian, with 100 pounds of powder and 770 pounds of projectile, has only yielded a little ever 400 foot tons more; and in these comparisons the American gun uses only 80 pounds of powder with a 600-pounder shot. But with 110 pounds of powder and 700 pounds of projectile the American rifle gives 9551 of projectile the American rine gives 9554 foot tons muzzle energy, or 246 foot tons per inch of shots circumference, an energy about as great as any gun known for this charge, and decidedly superior to Krupp's and the Italian, using heavier charges. With these Italian, using heavier charges. With these encouraging results, by developing a strong and durable system of gun construction, with our superior powder and projectiles, and with our rifling and length of bore, it would seem that the Ordnance Department had produced a weapon able to cope successfully with the best foreign guns, and at a

Everyday Uses of the Telegraph.

Telegraphy is the great time-saver in all business transactions. It may be used not only for these purposes, but also in those pertaining to domestic economy. For instance, the Duc de Montpensie said, attained great proficiency in this direction. Telegraphic communication connects proportionately doubled everywhere, and the duke is made aware that a pair has entered. breecty in front of the seat is a crain which the turns to produce the power that puts in If the gentleman now occupying the luxurmotion two small fans that can be operated singly or together. The elevating fan has the veteran statesman during his Spanish peregrinations, we suppose the signals were increased indefinitely, for Spaniards have not the privilege of entertaining men of his status every day. However this may be, it only shows us how much can be done with telegraphy. Every well-ordered hotel has a telegraphic call in each chamber, and our merchants are using it extensively. Bradstreets, with commendable enterprise, have no less than twenty-five branch offices in the city of the control of the in the city, each with direct wires to the head office. Those who can afford to do so should introduce telegraphy as a means of communication between every part of their household. This is coming, and it will not be long before an electric system of communica-tion will be as necessary in warehouses and tion will be as necessary in warehouses and well-appointed dwellings as speaking-tubes and bell-wires.

> American manufacturers of railway machinery and supplies have reason to feel encouraged from the beginnings of an ex-port trade already inaugurated. During the year 1877, there were exported from the United States 64 locomotives, value \$633, 501; 521 passenger and freight cars, value 6375 car wheels, value \$99,845 945 cwt., of rails, value \$281,198 and 131,945 cwt., of rails, value \$281,198. Considering that it is but a short time since most of these articles were imported to this country in enormous quantities; the fact is full of significance. American iron manu-

INDUSTRIAL ITEMS.

NEW HAMPSHIRE.

The Amoskeag Ax Company, manufacturers of edge tools, have built up a trade extending all over the United States and into many foreign countries. Their factory has a capacity for producing 3000 axes, hatchets &c., per week, and gives employment to 60 hands, 12 trip hammers and a large amount of the most improved machinery.

MASSACHUSETTS.

All prospects of having Gardner's pocket cutlery works removed from Shelburne Falls to Westfield are past, the committee who were appointed by the subscribers to the stock not reporting in its favor.

A Willimasburg correspondent of the Springfield Republican writes: There is no change in J. Hayden & Co.'s affairs. All propositions made by Mr. Hayden to date have been declined. The works are running under attachment and a keeper, and orders are filled as usual. The estate may come to bankas usual. The estate may come to bank-ruptcy, but now offers a splendid chance for the formation of a stock company. The works at Haydenville, which are in perfect condition for manufacturing brass goods, with 40 tenements, can be bought on advantageous terms.

CONNECTICUT.

Business will soon be resumed at the works of the Miller Bros. Cutlery Company, of Meriden, their financial difficulties having

of Meriden, their financial difficulties having been arranged.

The zinc mill in Shelton, formerly run by Phelps, Dodge & Co., will now be used as a brass mill by L. T. Wooster, for some years superintendent of Osborne, Cheesman & Co.'s brass mill in Ansonia, and W. H. H. Wooster, his brother, of Springfield, Mass. They have purchased the machinery of a brass mill that was burned in Chicago some brass mill that was burned in Chicago some time ago.

Business at the Wilcox Silver Plate Company, of Meriden, is getting so brisk that on Monday, the 18th inst., they commenced to

Monday, the 18th inst., they commenced to run to hours a day.

The Higganum Manufacturing Company, of Middlesex county, makers of agricultural implements, are compelled to run their factory day and night in order to supply the demand for their goods. With all the modern machinery for making farming implements, this company is enabled to turn off work very rapidly. They recently made and shipped to New York 100 plows in a single day

Bevin Brothers, of East Hampton, have been assigned a position for their exhibit of bells at the Paris Exposition. The Gong Bell Company will also exhibit goods. Their show of goods at the Centennial was very fine and without doubt will be equally fine at Paris

Messrs. H. G. Giles & Son, of Troy, are in receipt of quite a large and important order from China for stoves, mainly of their best and most costly kinds.

The Oviatt Thresher Works, at Hudson, while a remaining a completion.

The Oviatt Thresher Works, at Hudson, are rapidly approaching completion. The building is 150x52 feet, and covered with asbestos roofing. It is well lighted, having, besides the windows, seven skylights, each 3½x6½ feet. A well has been sunk in the building, securing an ample supply of water. A portion of the machinery was put in this week, and it is expected the works will be in running order early in April. A large number of orders for wagons and threshers have already been received from different sections of the country, and plenty of business for the coming season is assured. ness for the country, and pienty of business for the coming season is assured. Inquiry as to the cost of 100 wagons delivered at San Francisco, has been received by the secretary from a firm in that city. The company will employ from 15 to 20 workmen to begin with.

The Lake Champlain Mapufacturing Com-

The Lake Champlain Manufacturing Com-pany of Ticonderoga, are putting a new 72-inch turbine water wheel in their works to drive additional machinery, soon to be intro-duced, in the manufacture of several new articles for which the company have already

large orders.
The Ames Iron Works, at Oswego, are The Ames Iron Works, at Oswego, are very prosperous in their business of engine building. Their works are among the largest in the country, and they are reported to have sold about 400 portable steam engines during the past year. Every piece of their machinery is fitted to a standard gauge, and duplicate parts can always be furnished. They also manufacture boilers, and keep them in stock up to 40 horse-nower. Larger them in stock up to 40 horse-power. Larger ones are made to order. The knife works of George Barnes & Co.,

of Syracuse, and the Whitman & Miles Manufacturing Company, of Akron, Ohio, have consolidated into one company, and are now known as the Whitman & Barnes Manufacturing Company. They are organized under the laws of Ohio, and are engaged in the manufacture of mower knives and reaper sickles, sections, spring keys, &c. The sickles, sections, spring keys, &c. The works at both places employ about 300

hands.
The Siemens Cowper Cochrane Fire Brick
Stoves at Crown Point, N. Y., have started
and are perfectly satisfactory. Temperature and are perfectly satisfactory. Temperature in 24 hours, 1200 degrees. At 1500 degrees the escaping gas went off at 400 degrees. This is the first set erected in this country NEW JERSEY.
The Port Oram Furnace has gone out of

PENNSYLVANIA.

Graham, Emlen & Passmore, of Phila-Graham, Emlen & Passmore, of Philadelphia, have shipped upward of 800 of their Philadelphia lawn mowers to Germany since the first of the year. They have also shipped upward of 200 to Australia.

The Baldwin Locomotive Works have just entered an order for 10 locomotives from the Gilbert Elevated Railway of New York. They have also just received an order for four street motors from a Brooklyn com-

The locomotive built in the P. & R. shops, Reading, for the Paris Exposition, was com-pleted on Saturday, the 16th inst. On Monday, the 18th inst., the Pottstown

Iron Company shipped eight car loads of nails—seven to California and one to New York. On Tuesday, the 19th inst., six more car loads started for California. Each car holds 200 kegs, which would be a total of 2800 kegs in two days. The nail factory of the company is in steady convention, and the the company is in steady operation, and the demand for their nails is quite heavy.

Manufacturers of

IMPROVED Gimlet Pointed Wood Screws, Patented

1876.



After forty years' experience we offer to the trade our Centennial Screw, patented May 30, 1876, as the best we have ever known.

The method of manufacturing is also patented, and we are changing our machinery as fast as possible, to manufacture the improved article only. To introduce them, they will be sold at same price as the old style screw.

The new screws will be packed in manila colored boxes with new label covering end of box, and enlarged figures showing plainly contents.

To distinguish this screw we have adopted a trade mark, which is also secured to us.



The above drawings show the progress of making screw from the old blunt point to style now adopted.

Experience has shown that the weak point of screws, as formerly made, is at the heel of the thread, where all the strains of forcing the screw into the wood naturally concentrate.

To avoid the sharp angle existing in the old style of screws has been the aim of all manufacturers, but every expedient hitherto adopted has proved as objectionable as the evil complained of.

It will be seen in our new screw that not only is the sharp angle avoided, but

the strength very much increased, as illustrated above. See sections at lines CLAIM.

"A Pointed Wood Screw having the outer periphery of the thread upon us body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the thread brought to an edge of a constant angle, without jogs in the paths between the threads, substantially as described."

F. J. Obert shipped last week from his Union Boiler Works, at Reading, two tanks having a capacity of 30,000 gallons, to the Flat Rock Paper Works, at Manayunk. He also shipped last week for Canada a boiler 24 feet long by 6 feet in diameter, in which to pulp wood for use in the manufacture of

paper.
It is not an aqua-duct that the Phœnix Iron Company has contracted to build across the Hudson above Troy, but a via-duct. The contract is a good one, the explanation not-withstanding.—Phænixville Messenger.

The Phenix Iron Company are converting the old cotton mill which they recently purchased—together with the balance of that property in the North Ward—into a machine and converting the them. and carpenter shop. It is rumored that the pattern makers will occupy the carpenter shop, and the present pattern shop will be

shop, and the present pattern shop will be used for the storage of patterns.

The Kauffman Furnace property, a short distance from Columbia, was sold by the assignee of C. S. Kauffman to H. M. North for \$100, subject to mortgages of upward of \$30,700, making the price for the furnace property \$30,800. The cars and personal property at the furnace were also sold to H. M. North, the cars bringing \$46 each. At the same time an ore lease in York county, having yet four years to run, was sold to A. J. Kauffman for \$51.

J. Kauffman for \$51.

The Pennsylvania Canal Company, at The Pennsylvania Canal Company, at Harrisburg, are having their large weigh lock scales rebuilt by Riehle Bros. This scale was built by the predecessors of the firm, and has been in active service for over 15 years, weighing loaded boats. It is said to have done remarkably well and weighs almost as sensitively as when first erected, notwithstanding its immense capacity, something like 500 tons.

notwithstanding its immense capacity, something like 500 tons.

We clip the following from the Sharon Herald of the 22d inst.: During the week ending Saturday, March 16, at the Westerman mill, hoop and guide mills double turn; bar and sheet, single turn; puddle mill and nail factory off; puddle mill went on Monday of last week, and Saturday, March 16, ended the nine off weeks of the nail factory. ended the nine off weeks of the nail factory; blast furnace doing well as usual. At the Kimberly mill, puddle, guide and both hoop mills double turn; nothing special from Keel Ridge Furnace. At the Stewart Iron Works, No. 2 doing as well as usual; no signs of blowing in No. 1, nor of again starting the bloom mill—not at least until the iron trade is in a little better condition than it is in at present. From Greenville we have reliable present. From Greenville we have reliable information that the Rolling Mill Company have secured a contract for 5000 tons of cotton ties, and that operation will be resumed by the 1st of April for a certainty. The West Middlesex Mill resumed operation last week; two furnaces will be in operation, which is all that will go in at present. "No contract" this time. The Wheeler Iron Company are the parties doing it. The iron made at this mill last fall, of which mention was made at the time, gave good satisfaction at Pittsburgh. Then, as now, the specialty will be for the Siemens-Martin steel process. If a good market is got for the iron, the mill will go on to its entire capacity.

The Logan Furnace (C. C.) is in blast. All the iron made is worked into blooms, &c., at the works of the company using it.

PITTSBURGH AND VICINITY

A meeting of the creditors of Rogers & Burchfield was held on Tuesday, the 19th, at the office of Register Shafer. The liabilities amount to \$430,000; under advisement, \$70,000. Total proceeds of assets sold, \$109,000; preferred claims and expenses paid, \$24,000; leaving net cash for distribution, \$85,000. A dividend of 15 per cent. was declared, which will leave about \$10,000 in the hands of the assignee, Mr. Reuben Miller, Jr. No other property remains to be sold.

The striking puddlers at the Forge and Iron Works, in the Ninth Ward, will resume work on Monday, the difficulties having been settled. It is stated that the strike was not legalized by the Amalgamated Association. MARYLAND.

The Muirkirk Furnace has gone in blast o work up stock on hand.

The Elizabeth Furnace, which lately passed into new hands, is to be immediately rebuilt and modernized. It is now known as the Ferrol Furnace and will go in blast about June 1.

WEST VIRGINIA.

The Quinnemont Furnace has been in blast since March 1, and is now making from 35 to 40 tons of foundry iron per day of very

superior iron.
The Laughlin Nail Mill, recently organized at Wheeling, will probably start up the 1st of April.

The blast furnace at the Top Mill, Wheel-

ing, will blow in soon.
The Whittaker Iron Works at Wheeling

resumed operations on Tuesday, the 19th.

At a meeting of the directors of the Benwood Ironworks, Wheeling, Tuesday, the 19th inst., A. W. Campbell was elected president of the company, vice Alex. Laugh lin, resigned.

Mr. H. B. Miller, of Wheeling, has about perfected his arrangements for running a foundry in one of the shops of the peniten-tiary at Moundsville. He has contracted tiary at Moundsville. He has contracted for the use of convict labor not exceeding fifty prisoners, and will manufacture any article in his line for which there is proper demand.

The Crescent Ironworks, Wheeling, resumed operations on Wednesday, the 20th. Robert Murdy, of Parkersburg, has the contract for furnishing the Pittsburgh, Cincinnati and St. Louis Railroad 20,000 railroad ties, to be delivered at Steubenville,

The sheet rollers at the Whittaker Mill. Wheeling, have resumed work, and the mill is now running full again. The Riverside Nail Department, Wheeling,

shut down last Saturday until April 1st. оню.

The Kent Glassworks have been closed for

a month for repairs.

Mr. Morgan, of Morgan, Williams & Co., has just returned from the Cambria Iron and Steel Works, Johnstown, Pa., after closing a contract to furnish that company with a large amount of machinery that will

B. KREISCHER & SON, New York Fire Brick & STATEN ISLAND

CLAY RETORT WORKS, Established 1845.

Office, foot of Houston Street, East Rever, NEW YORK.

The largest stock of Fire Brick of all shapes and zes on hand, and made to order at short notice. Sizes on hand, and made to order at short nettee.

Cupple Brick, for McKenzle Patent,
and others. Fire Mortar, Ground Brick, Clay and
Sand. Superior Kaolin for Rolling Mills and Found
ries. Stone Ware and other Fire Clay and Sard,
from my own mines at New Jersey and Staten Island,
by the cargo or otherwise.

NEWTON & CO.,

PALMER, NEWTON & CO., ALBANY, N. Y., Manufacturers

BRICK FIRE Stove Linings,

Range and Heater Linings Cylinder Brick, &c., &c.,

M. D. Valentine & Bro

FIRE BRICK **And Furnace Blocks** DRAIN PIPE & LAND TILE. Woodbridge, - - - N. J.

A. HALL & SONS, Perth Amboy, N. J. HALL & SONS, Buffale, N. Y.

FIRE BRICK

of reliable quality for all purposes, manufactured o the best New Jersey Fire Clays. Also, Architectura Terra Cotta, Fire Clay, Fire Sand, Kaolin, Ground Fire Brick and Diamantine Bailding Brick.

Brooklyn Clay Retort FIRE BRICK WORKS.

MANHATTAN FIRE BRICK

and Enameled Clay Retort Works.

Omce, 633 K. 15th Mt., N. Y. Clay Retorts, Raameled for Gas Houses; Retorts for burning raw bone and re-burning bone for Bone Black. Fire Bricks, Fire Blocks, Cupola and Range Bricks of all slapes and sizes. The best fire clay from my own Clay Beds at PerthAmboy, N. J.

Watson Fire Brick Manufactory ESTABLISHED 1836. JOHN R. WATSON, Perth Amboy, New Jersey.

FIRE BRICK, For Bolling Mills, Blast Furnaces. Foundries, Gas Works, Lime Kilns, Tanneries, Beiler

and Grate Setting, Glass Works, &c.
FIRE CLAYS, FIRE SAND, AND KAOLIN FOR SALE

HENRY MAURER, Excelsior Fire Brick & Clay Retort Works,

Manufacturer of FIRE BRICK, HOLLOW
BRICK AND CLAY RETORTS.
WORES PERTR ANDOY, NEW JERSEY
Office & Depot: 418 to 422 East 23d St., N. Y

TROY FIRE BRICK WORKS

JAMES OSTRANDER & SON, ESTABLISHED 1848,

FIRE BRICK,
Tuyeres, Tiles, Blast Furnace Blocks, etc. Miners and
Dealers in Woodbridge Fire Clay and Sand, and Staten
Island Kaolin.

Established 1864. CARDNER BROTHERS,

STANDARD SAVACE Fire Brick, Tile & Furnace Blocks,

OF ALL SHAPES AND SIZES Clay Gas Retorts and Retort Settings,

Miners and Shippers of Fire Clay. OFFICE: 96% Fourth Ave., Pittsburgh, Pa. Works: Mt. Savage Junction, Md., and Lockport, Pa

BORGNER & O'BRIEN,

Manufacturers of Fire Bricks, Clay Gas Retorts,

Retort Settings. Tiles, Blocks, &c., &c.

23d St., below Vine, PHILADELPHIA.

Eighteen years' practical experience

WM,"J,"O'BRIEN CYRUS BORGNER.

CHAS. N. BACON,

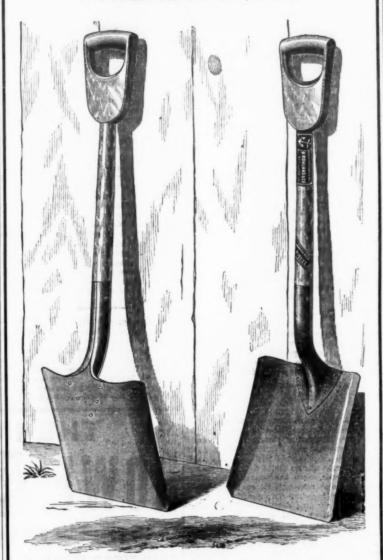
Felting & Wadding Manufactory,
Winchester, Mass.

Patent Felt Buffer Wheels for Hardware and
Cutlery Manufacturers, Brass Flushers, Nicke.
Platers, Jewelers, &c. Felt for Bollers ared Steam
Pipes, Harness Makers, &c. Patent Black Board
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office & Salesroom, 22 Exchange Place, Boston.



PHILADELPHIA.



B. Rowland & Co.'s Patent Riveted Shovel. CAST STEEL.

We would particularly call the attention of the trade to the Patent B. Rowland & Co.'s Anchor Brand Shovel, as now manufactured by us, possessing as it does improvements in construction which render it the most perfect STRAP Shovel made. In it the old style of back strap is entirely dispensed with, and a front strap substituted, riveted and clamped firmly to the blade, clasping the handle in the manner of a ferrule, thus obviating all danger of tearing off strap and making a more beautiful finish front and back. These improvements add to the appearance of the shovel, enhancing its durability at least one-third, and warrant the assertion that all the Shovels we manufacture from this parter twill prove the root desirable every offered the confacture from this patent will prove the most desirable ever offered the consumer

The above advantages are also especially noticeable in our Spades and

B. Rowland & Co. CAST STEEL.

All goods of this brand (which is copyrighted) are warranted in every respect, and we will guarantee that the following named PATENT RIVETED Shovels and Spades will be made from the gauge of Cast Steel specified:

D Handle Square Point Shovel

B Round " 13 gauge

D " Round " 14 " ng Handle Round Point Shovel D Handle Spades
D "Western Coal Shovel Anthracite Coal Shovel Gauged by Stubbs' Gauge.

B. ROWLAND & CO.,

CITY OFFICE,

27 North Fifth Street, Philadelphia, U. S. A. Works at Frankford, Phila., U.S.A.

NEW YORK WAREHOUSE, 100 Chambers St.

The National Glassworks at Bellaire shut own on Tuesday, the 19th inst., for repairs. down on Tuesday, the 19th inst., for repairs. The Revolving Scraper Company, at Columbus, have recently shipped a lot of their revolving scrapers to their agents in London, also samples of both scraper and barrows to the Paris Exposition. These goods are well adapted for shipment to a distance, as they are made to fold up and pack in nests. The company anticipate a large trade this year.

trade this year.

The Cleveland Forge and Iron Company are running their works single turn, and have good prospects of an increase of busi-ness in the near future.

ness in the near future.

Messrs. Taylor & Boggis, Cleveland, manufacturers of light castings, are running their works full, and have a very fair prospect for largely increased business this year. The Western Horse Shoe Company, at Cleveland, have a fine large brick building, and have nearly completed their preparations for vigorous operations, which they expect to commence in a few days.

The Alice Furnace has made 38,250 tons of metal in her career.

metal in her career.

The Sarah Furnace, Ironton, fired up Monday, the 18th inst.

The Belfont Nail Mill, at Ironton, is again

idle.

The Agricultural Implement Works of L. Spence and that of Hoyle Brothers, of Martins Ferry, report the prospects for a promising demand during the season unusually good and the number of machines in course of construction greater than usual. Mr. Spence has a contract for two large engines for a couple of mills in Green county, Pa.,

upon which all hands in the engine shop are

From the Mining Journal we take the following: The usual number of men are employed at the Republic, and it is expected that the output will be about the same as that the output will be about the same as last year, unless the bottom drops entirely out of the ore market. The Edwards mine is working a force of about fifty men, and raising about \$1,000 tons of ore per month. These figures can, however, be more than trebled should the outlook warrant a corresponding increase of the force. The new opening at the New York mine is turning out to be an extraordinarily rich find. They are now taking out some as fine steel ore as we ever saw. They are still stripping, and until the entire vein is uncovered mining will be carried on only on a limited scale. It is now considered probable that work will be resumed at the Spurr mine in the near future. It is expected that the assignee will be instructed to resume operations for near future. It is expected that the assignee will be instructed to resume operations for the benefit of the bondholders and other creditors of the company. McComber is now raising some excellent hematite from his new mine near the Depot Negaunee, and is drifting into the hard ore. It is now reasonably certain that operations will be suspended at the Michiganure mine on rabout May 1st.

The coal mines in what is commonly known as the Coal Creek Porton in Anderson.

ments, and in 60 days expect to double their

The Harrison Wire Works are making ome extensive alterations and improve-

South St. Louis, which have been idle since last November, have no prospect of starting up at present. A remonstrance against a reduction of the tariff signed by 370 men has been sent to Congress from that district. The zinc works, the Missouri furnace and the Iron Mountain Railroad machine shops are the only works that are doing anything in South St.

The St. Louis Bolt and Iron Company are full of orders, and running full.

Belleville Nail Works are again at work.

Gen. Powell, the manager, is pushing the mill to its utmost capacity, turning out

nearly 700 kegs per day. WISCONSIN.

Operations at the Bay View Iron Works under the North Chicago Rolling Mill Comlease are expected to commence the 1st of May.

manufactory which it is proposed to remove from Lafayette, Ind., to some point near Cleveland. This is said to be the largest glass manufactory in the United States, and its removal to Berea would contribute greatly to the growth of this place, and the mere chance of obtaining it warrants the outlay of the requisite overtures and negotiation, on the subject.—Berea Republican.

The trade of Peter Gerlach & Co., saw manufacturers, is large, and some excellent orders are now being filled for saws from different sections of the country. product. So much in their favor are these two latter items that they are now, and have been for some time, supplying large Northern pump factories with bored material, for less than the same can be there manufactured. The pumps completed at the factory are finished in first-class style, and are popular for their lasting qualities. The capacity of the factory is 50 finished pumps per day. The company is behind its orders, and without special soliciting they find ready sale for all they can produce of bored work and finished pumps. Their material is drawn from Tennessee, Georgia and Alabama, and is said to be not only cheaper Alabama, and is said to be not only cheaper but better in quality than Northern timber will produce. The Roane Iron Company's new steel fur-

The Roane Iron Company's new steel furnaces and mill are progressing rapidly. The gas producers are complete, except that a part of the connecting pipes leading to the furnace are to be put in position. One furnace is about complete. Another furnace, and perhaps a third, will be begun at once when the first is done. The pumps, pipes and crane have been finished at various factories in the North, and have been shipped. The blooming train is being made by Mc-The blooming train is being made by Mc-Intosh, Hemphill & Co., Pittsburgh. It is a 35-inch train, the largest blooming train Intosh, Hemphill & Co., Pittsburgh. It is a 35-inch train, the largest blooming train in the United States. This train will be supplied with automatic rolling apparatus, and will be propelled by the Corliss engine now in use on the iron rail train. The rail train, 2t inch rolls, is all ready to be put in position. The rolls and housings were cast by D. Giles & Co., Chattanooga, and will be placed on the foundation now occupied by the iron rail train. This train will be driven by a Corliss engine, 42x42 inches, which is now on the road. The fly-wheel is 34 feet diameter and weighs 38 tons. The works will begin melting steel about the middle or latter part of April. They will be fully ready to turn out steel rails by the 1st of June, if no accident of a serious character shall happen to the works before then. The prospect of trade for these works is very encouraging. All the best Southern lines are contemplating putting down steel rails. Many of them have already done so in part. The prospect of securing the right kind of ores is good; in fact the bed of gray specular the company is now working near Cartersville, Ga., promises everything needed. Several hundred tons of pig have been made of this ore as an experimental lot, and it has already been tested in a small way, though of course no test short of making it into steel rails will be conclusive. On this point Capt. Chamberlain, vice-president and superintendent of the company, and a gentleman of experience and close observation, anticipates no serious trouble. The Roane will be the pioneer steel mill of the South. Its predecessor was the successful iron rail mill of that section.

coal Mining in Tennessee.

The coal mines in what is commonly known as the Coal Creek Region, in Anderson County, East Tennessee, are among the amount are effected before that date. Scarcely half the product of last year was shipped, the balance remaining in stock at the mine, and being considerably increased by the past winter's work. It is not to be expected that the company can or will continue to accumulate ore in stock piles in the face of a depressed or falling market.

MISSOURI.

But one furnace in this State is in blast—the Missouri—which is making 50 to 60 tons of iron per day using Crawford ore.

Midland Furnace will blow in during the month of April. month of April.
Choteau, Harrison & Valle have started the Laclede Rolling Mill on full time at Pitts-tentiary a hundred convicts, whom they placed in their works nine months ago, and have been working none but this labor since.

There was very bitter opposition to this action by the men employed at the other mines, and some violence and destruction of The Peckham Iron Company expect to be ready for business by April 15. They propose to make blooms directly from Iron Mountain ore. They expect to make a three ready for business unless conditions unless conditions are considered as a change for the business unless conditions. Mountain ore. They expect to make a bloom especially adapted for fine qualities of iron.

They expect to make a tire from the business unless conditions undergo a change for the better.

The output of Black Diamond mine in

been very light.

The mines depend entirely on the Knox-ville and Ohio Railroad, a line 40 miles long, from Knoxville to Coal Creek.

The mines sell their coals in Georgia, Alabama, North Carolina and Tennessee, having practically monopolized the supply-ing of gas coals to all cities within th

TENNESSEE.

The Southern Pipe and Pump Company removed their manufactory from Chicago to Chattanooga some few years since, on account of the superior advantages of the latter location for handling their large and growing trade, which now extends to all

New York Opinion Respecting the Bankrupt Law.

The announcement that the Judiciary Committee of the House of Representatives had decided to report a bill repealing the national bankrupt law caused inquiries to be made on Monday among leading merchants, in order to ascertain their views of the probaorder to ascertain their views of the probable effects of the passage of the bill upon commercial interests. This bill provides that involuntary proceedings in bankruptcy shall cease immediately after its passage, but that all voluntary proceedings shall be allowed until July 1, 1879.

Mr. H. B. Claffin said that he was in favor of the immediate and total repeal of the bankrupt act. He was strongly opposed to the clause in the bill permitting voluntary

benkrupt act. He was strongly opposed to the clause in the bill permitting voluntary bankruptcy proceedings till the middle of next year, as that would put a premium upon bankruptcy for the next 15 months. The repeal of the law might cause hardship in some individual cases, and there would be a variety of collection laws in the differ-ent States, but anything would be better than the present act. The latter was in such a condition that amendment would be than the present act. The latter was in such a condition that amendment would be a hopeless task, and it was better to wipe it out altogether. It enabled debtors to ob-tain a release from their obligations too easily, and proceedings under it were much

too expensive.

Mr. E. S. Jaffray was also strongly in favor of repeal, but said that the bill agreed vor of repeal, but said that the bill agreed upon by the committee was infamous. If voluntary bankruptcy proceedings were to continue, while involuntary proceedings were stopped, creditors were rendered powerless. The present law was a vehicle of fraud. It led to and protected a vast amount of dishonesty. He was one of the committee who drew up the original draft of the act, but by the time Congress had fincommittee who drew up the original draft of the act, but by the time Congress had fin-ished amending it he could scarcely recog-mize the bill. As it stood now, where a cred-itor saved one dollar by it he lost fifty dol-lars. In regard to the practicability of remedying its objectionable features, Mr. Jaffray said that if a 'good bankrupt law were passed to-day, Congress would make it a bad one next week. a bad one next week.

Mr. Harriman, of Low, Harriman & Co. Air. Harriman, of Low, Harriman & Co., said that he favored the retention of the bankrupt law, although it had defects. It was better, with all its imperfections, than a return to a multiplicity of State laws, with a return to a multiplicity of State laws, with the old system of preferred creditors, &c., which operated very unjustly. The custom-ers of his firm were chiefly persons who lived in cities and did an extensive business. If one of them got into bankruptcy, his house could secure the appointment of a good as-signee, and the results of the law were gen-erally favorable. Of course, the law could be made an instrument of fraud if it was he made an instrument of fraud if it was carefully studied for that purpose and deception was planned a long time in advance. For instance, a merchant came to this city from the West last year, and bought large quantities of goods, while owing heavy confidential debts to relatives. He gave notes, and had five months in which to sell his goods before any important payment would be due. By carefully evading any act of bankruptcy under the ninety-day clause, he was able to pay his relatives and other preferred creditors, while his creditors here could obtain but a small part of their claims. Still, cases like this merely proved that the law was not perfect. Under the old system, before the national bankrupt law was passed certain. tional bankrupt law was passed, certain large firms who did business enough to keep lawyers constantly employed in watching their claims, made it a rule never to comprotheir claims, made it a rule never to compro-mise with debtors, and were usually able to get all the available property of a delinquent. The other creditors, who were "left out in the cold," had no remedy. Now there was a chance for the equitable distribution of whatever a debtor was able to pay. It was natural that some of the large jobbers should prefer the old condition of things, especially as they had many country debtors for small amounts. When any of the latter became bankrupt, the assignee might be an irresponbankrupt, the assignee might be an irrespon-sible person, and the expense of bankruptcy proceedings might be large in proportion to the amount involved. The jobber, therefore, might get only a small part of the bankrupt's assets, while under the old system he would probably seize the whole. The combustion was increased and smoke commission houses, Mr. Harriman believed,

in the interest of the debtor class and against that of creditors. In some of the States the situated outside of a city, or a quarter of an acre, with house and appurtenances, when owned and occupied by any resident of the State and situated within a city. In that State, also, the law exempted a large amount of personal property, including horses, cattle, sheep, &c., and one year's supply of food for the debtor's family and live stock. With this as the only law on the was vanorized in a separate boiler or retort. it. In Pennsylvania, under the State law, a debtor's personal property must be exstate could be a reduced consumption in the ratio of 2.5 or 2.7 to 1 as compared with coal; year if the sum in interest exceeded \$500.

In California a debt was outlawed in two years unless the creditor held an instrument under seal. These laws in Western States were designed expressly to protect their of the deposit of solid carbon within it.

The first employment of the author's syswere designed expressly to protect their citizens from creditors in the East. An equitable national law was required to

sede such one-sided special enactments supersede such one-sided special enactments.

The bankrupt law was passed not only for this purpose, but to protect debtors from a certain class of creditors who would never relinquish a claim for less than its full amount, and would keep a victim of business reverses "under the harrow" all the rest of his life. After the panic of 1857 there were certain houses in this city which purreverses "u of his life. sued this unrelenting policy, and this was among the causes of the enactment of the national law

This gentleman said that the bankrupt law ought to be made more stringent and less costly in its operation. He thought that there ought to be three classes of discharge under the act. A first-class discharge should show integrity in the bankrupt, a second class that his integrity was question-able, and a third class that he had been guilty of fraud. If a man became bankrupt twice he would not give him a first-class discharge the second time. He also thought that a bankrupt should not be discharged until notice to all his creditors had been

proved.

To illustrate the workings of the State laws before the passage of the bankrupt act, this gentleman described the case of a friend of his, a merchant in this city, who sold \$1800 worth of goods to a man in Boston and received notes for the amount, dated at Boston and the control of the state of the deleter of the state of the stat Before the notes fell due the debtor came a bankrupt, but he was afterward le to pay them. When the sum was deable to pay them. When the sum was demanded, he made answer that he was not liable by reason of his discharge in bank-ruptcy. This proved to be the fact, simply because the notes were dated in Massachusetts, and the operations of the State law had wiped out all the debtor's Massachusetts

merce unanimously adopted a memorial to Congress remonstrating against the repeal of the bankrupt law and requesting that a commission be appointed to ascertain its defects and recommend amendments. This memorial was afterward signed by a great number of mercantile firms, including many of the best-known houses in the city. -Evening Post.

The Use of Liquid Fuel.

In a paper read before the English Insti-tute of Civil Engineers, it was stated by Mr. H. Aydon that apparatus specifically adapted for the combustion of liquid fuels, which comprised every class of fluid hydrowhich comprised every class of num nymo-which comprised every class of num nymo-carbons, might be ranged in five classes. The leading principle of their action was either the subdivision of the liquid as spray, class of the number of the or by percolation through a porous bed, or by preliminary conversion into vapor—when the fuel was mixed with air, or with air and steam, by the instrumentality of jets of steam or compressed air, or it was burned steam or compressed air, or it was burned simply as gas in jets. The earlier system of Mr. C. J. Richardson, in which the liquid fuel, mixed with heated air, percolated upward through a porous bed, was tried at Woolwich Dockyard, but the performance was not satisfactory, for black smoke and soot were discharged in such abundance as speedily to choke the flue tubes and stifle the draft. By a subsequent improvement in draft. By a subsequent improvement, in which a mixture of steam was introduced with the fuel, a much better performance was effected—the quantity of water evapo-rated having been increased from 6 ½ pounds per pound of fuel to from 7 pounds to 18½ pounds per pound of fuel, though the formation of dense smoke was not prevented. The performance of coal under the same boiler amounted to an evaporation of 8 pounds of water per pound of coal.

The system of Messrs. Simm & Barff, in which the liquid fuel was vaporized in a retort placed in the furnace and burned in jets, was tried in 1866 on board the yacht Minnie. The quantity of oil consumed amounted to one-third only of the corre-sponding quantity of coal. The system was afterward tried with the addition of steam,

were generally in favor of the present national law, on the ground that it was much better than none.

A gentleman who has had much experience in the workings of the collection laws said he believed that the repeal of the bankrupt act would affect commercial interests very injuriously. The law, he admitted, needed amendment. It was imperfectly executed, and the cost of proceedings under it was excessive. As it was, however, it was far preferable to a variety of State laws, many of which were framed directly in the interest of the debtor class and against coal or oil could be used. For burning the grate-bars were covered with thin fireexemptions of property from attachment slabs and a few cinders, and the ash-pit and sale for debt were so great that without a national bankrupt law it would not be safe for any New York merchant to sell a bill of goods in them. In Texas, for instance, the State law provided that 200 acres of land, not Lambeth, in a Cornish boiler of 20 or exceeding. Scool in value at the time of 20 or specific states of the same of the sa State law provided that 200 acres of land, not exceeding \$5000 in value at the time of its designation as a homestead, without reference to the value of improvements thereon, should not be subject to forced sale for debt, except for the purchase money. The law also exempted a great number of personal effects, which might be of high value. In Wisconsin the homestead programments with a double-flue Galloway boiler, at the chemical works of Mr. Barnes, at Hackney Wick, gave a net even or a tend of 120 or 20 tected by law consisted of 40 acres of land, with a house and all appurtenances, when situated outside of a city, or a quarter of an acre, with house and appurtenances, when owned and occupied by any resident of the owned and occupied by any resident of the oracle efficiency of the liquid fuel ranged

subject a man might own \$100,000 worth of property in Wisconsin, and have it so placed that a creditor could not collect a dollar of the chemical works of the inventor, at Dept-

tem in metallurgical operations was at the Millwall Iron Works. The oil furnace was an adaptation of an old scrap iron furnace, 7 feet square and 2 feet 9 inches high, having a fire-grate 2 feet 6 inches wide and 7 feet leng. It was fitted with bricks and feet long. It was fitted with bricks, and was used as a combustion chamber. Three oil injectors played directly upon the metal to be heated lengthwise of the furnace. In August, 1871, the results of comparative exeriments showed that

The time taken to heat the furnace with coal was 6 hours.

The time taken to heat the furnace by above system (5) was 5 hours.

The time taken to heat the furnace by the

author's (4) was 2 hours 6 min.
In five hours and a half—the total time of cupied in making up, together with the intervals, between the charges—68¼ gallons of liquid fuel were consumed, being at the rate of 12½ gallons per hour. Twenty-one piles of scraps, each of 2 cwt., were charged into the furnace, or a total of 42 cwt., while the weight of iron taken out was 37 cwt. 20 lbs., showing a loss of 4 cwt. 92 lbs., or 11 ½ per cent. The furnace consumed 0720 lbs. of coal in twelve hours to keep up the heat, against 1405 lbs. of liquid fuel, showing a raagainst 1405 to 1 in favor of the oil, the consumption of which was at the rate of 17 lbs. per hundredweight of iron. The loss of iron treated by coal was from 22 to 25 per cent., whereas with liquid fuel it was only 11½ per cent. by system 4 and 161/2 per cent. by sys

The author, in 1875, proceeded to Canada to experiment on the reduction and smelt-ing of the refractory iron ores of that country, many of which were magnetic, and contained 32 per cent. of titanic sand. The sole object of these trials was to prove that the Canadian ores could be successfully treated by means of petroleum as fuel. The experiments proceeded satisfactorily, and pig iron was readily produced from the ore though it was found that oil fuel in smelting operations must be used in connection with an air blast under pressure. The experi-ments were interrupted by the severity of the weather, and not until recently had the refractory and other ores been smelted and reduced at a minimum cost by liquid fuel or ative petroleum.

The results of the use of liquid fuel in Rus sia and other foreign countries were given in the paper, together with the conclusions of Mr. Isherwood, chief engineer of the United States Navy, on its employment in

The author made the general deduction that, although liquid fuel might be burned without the employment of steam, yet it was consumed most economically and with the best results in the presence of steam; and of course the more highly superheated the steam the better was the performance.

British Coal.

W. H. Johnson, in a paper read before the Manchester Geographical Society, makes Manchester Geographical Society, makes some very interesting statements in regard to the resources and future development of the coal fields of Great Britain. Although Great Britain has no doubt developed its resources much more thoroughly than other countries, and although its coal fields could maintain its present output for you wear. maintain its present output for 1040 years, yet some of its coal deposits will be worked out long before that time. To this ap-proaching exhaustion attention should be directed, as it has a most important bearing on the prosperity of the districts affected and the general welfare of the country. Even in the next century it will tell against the industries of Scotland and the North of

To begin with, take the Scotch coal field of which the production in 1876 was 18,665,552 tons; and in 1868 was 14,709,659 tons, being an increase in eight years of 3,955,593

tons per annum.

The production is likely to be still further increased, as the coal is easily and inexpen-sively worked; deep pits are unknown in Scotland, and the demand for manufacturing and domestic purposes must increase with the rapid growth of the population and extension of manufactures.

extension of manufactures.

We naturally ask what is the supply? The Royal Commission in their 1871 report give 9,843,000,000 tons as the quantity of available coal in Scotland. Now, after deducting what has been abstracted since that date, it is found that the present output can only be is found that the present output can only be maintained 500 years. Probably in a cen-tury and a half a great diminution in the output will be apparent, which will exercise a very prejudicial effect on the prosperity of the South of Scotland.

The coal field of Northumberland and Dur-ham is unequaled for the quality of its coke and the natural facilities which its rivers afand the natural facilities which its rivers af-ford for the export of coal. Its annual pro-duction, 32,000,000 tons, almost equals that of the United States or Prussia, while it sur-passes that of all other countries put together. In the last eight years its increase has been rapid, upwards of 1,000,000 tons per annum.

Output in 1876.....31,991,623

The quantity now available is probably about the same as in Scotland, and at the present rate of production will last only some 300 years. In consequence of the great depression in the iron trade the production last year was a little less than in the provious one though there is avery probaprevious one, though there is every probability that the output will be well maintained for many years. In 50 years this district will not be able to retwin its present proud position of largest producer among the coal fields of Great Britain, and in two centuries coals may regularly be sent from Yorkshire to the iron works in Durham. The waters of the Tyne and the Wear will then no longer be darkened by fleets of colliers waiting to convey the black diamond of the North to

for many years to come.

The coal fields of Lancashire and Cheshire can probably maintain the output for 800 years, as, besides the visible, there is a large concealed supply. Looking, however, at the vast and increasing industry of the district, any too large a supply of coal cannot be

Having considered our best-developed coal fields, an examination where the greatest fields, an examination where the greatest future extension of mining enterprise is to be looked for is of great interest. The first is the South Wales basin, containing probably 32,000,000,000 tons, or one-fourth of the whole available supply of coal in Great Britain, its output being at present one-ninth. Abutting on the sea coast, and with convenient ports of shipment, South Wales will at no very distant time take the lead in the export trade which the Northumberland and Durham district does at present, and the and Durham district does at present, and the era of cheap fuel will probably last longer there than in any other part of Great Britain.

Equally bright is the future of the great coal field of Yorkshire, Derbyshire and Nottinghamshire, with an available supply of 41,000,000,000 tons, or nearly one-third of the whole supply of the United Kingdom. This abundance of excellent fuel must rapidly increase the manufacturing industry and prosperity of the district.

Among the smaller coal fields those of the North Staffordshire district and Bristol probably admit of great development.

Railroad Enterprise in East Tennes-Railroad Enterprise in East Tennessee,—Parties are now engaged in surveying
a line for a narrow gauge railroad from
Careyville, Anderson county, Tennessee, on
the Knoxville and Ohio Railway up the
Powell River Valley to Cumberland Gap.
This road will open to market the year
round a very rich agricultural region, which now depends on the spring freshets and flat-boats, and goes to maket once or twice a year. The line will reach some very fine year. The line will reach some very fine beds of brown hematite ore, and pass directly through the fine zinc mine in Union county, owned and operated by the New York Zinc Smelting Company. This excellent zinc ore has been pretty extensively wined and shipped to New York zity spite. mined and shipped to New York city in spite of the great drawback in the matter of transportation. The Zinc Smelting Company, the counties along the line and the railroad companies to be benefited will all aid the enterprise, and as the road is but about 20 miles long there is no good reason why it should not be in operation within the current year.

A Foreigner's Opinion of Missouri Mines.—The Joplin (Mo.) Mining News says: Mons. O. Francois, who has been in Joplin for the past few days in the interest of a French mining journal, left yesterday morning for Webb City and Carthage. Mons. Francois has visited almost every mining

fortunate in possessing the mines which our miners consider too poor to work. But then he notices a vast difference between the American and Spanish miner. Here the man who searches for lead is intelligent, and accustomed to the luxuries of life, and is looking forward to the time when he can accustomed to the luxuries of life, and is looking forward to the time when he can better his condition, if he is not already wealthy. The American in most cases dresses well, lives well, devotes 18 hours out of 24 to rest, amusement and literature. The Spanish miners do not think of working less than 18 hours, and then if his day's work will procure for himself and family a meager meal he is happy. Besides, his children from eight years old and upward must also work to keep the wolf from the door. This is why Spain and some of the door. This is why Spain and some of the other foreign nations can compete with the United States in the production of lead, and is a stronger argument in favor of a high protective tariff than all the windy arguments on political economy ever de-

Car Wheel Manufacture at Knoxville.

The Knoxville Car Wheel Company are now, and have been for some time, making 20 wheels per day. The company own a small furnace in Carter county which furnishes the metal used-about 6 tons per day. This iron is a cold-blast charcoal, made from a mixture of brown hematite, red fossiliferous and manganese ores, beds of each of which the company own, and all lie near the furnace. Their mine of manganese is said furnace. Their mine of manganese is said to be excellent, containing by analysis 75 per cent. of manganese. This ore is very abundant, as are the other ores in the neighborhood. The furnace is 14 miles from Carter depot, on the East Tennessee, Virginia and Georgia Railroad, about 120 miles from Knoxville, where the company's foundry is located. This furnace was built 50 years ago, and is probably the oldest furnace in the South now in blast or capable of making iron of first quality. No other iron is used in the wheels they turn out except their own, and the reputation they have achieved shows the material to be first-class. achieved shows the material to be first-class There are now wheels in use on the Memphis and Charleston Railroad which were cast and Charleston Rauroad which were case from this iron by the same company 22 years ago. They have never had a wheel to cause an accident by breaking, nor had a wheel returned to them by reason of failure in any particular. The company employ about 100 hands at the furnace and foundry, paying from \$2 to \$2 per day. from \$1 to \$3 per day.

A German inventor has devised a banknote album, with leaves of asbestos paper, for the protection of notes, checks, and valuable documents. By placing them be-tween the asbestos leaves, especially if the book is firmly clasped, they may be kept country on the globe in the capacity of cor-respondent for the journal alluded to, and reduces them to cinders.

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While this is a new departure, it seems most appropriate to place this information in conjunction with our reports, and we are confident it will meet a want which has long been

While the object of our Agency is so well understood and so thoroughly appreciated as not to require a more extended notice at this time, we particularly desire to call your attention to that important department which we have brought to a greater degree of perfection even than that of the publication of our Book of Reports, viz. :

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For the further development of this important branch of our business, not only do our special reporters visit the various cities and villages in the district assigned each office, and carefully revise the reports already on record, writing also fully of those who have recently commenced business, but our correspondents are established in every town and hamlet, and are constantly advising us of the changes in the condition of all engaged in commercial pursuits. In addition to this, each office in the whole connection is required to transmit daily (to offices needing it) a copy of all information received by them (either from their travelers or correspondents), covering such trades as seek credit in other than local markets. By this system, thousands of reports are being constantly interchanged (the average re ceived by the larger offices during the past year having been more than 1500 a day), the majority reaching their destination within ten days from the time of leaving the correspondents' or travelers' hands. The value of this daily reciprocation having proved so great, so thoroughly commended by our patrons, we feel that we have touched the bo note, and that in future we shall anticipate the wants of all who need and seek information influencing commercial credits, whether of the local trade or that in the remotest places in the United States and British Provinces.

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CHARLES F. CLARK, President. haps almost any other branch of industry. It is a somewhat sweeping assertion to make,

New York, March, 1878.

The Enterprise Manufacturing Co. of Philadelphia, are about to place upon the mar-ket an article which when carefully examined will no doubt commend itself to the trade. The illustration herewith shown will give a The illustration herewith shown will give a fair idea of its mode of operation. It is called the Enterprise Champion Smoked Beef Cutter. It is claimed for it that in its simplicity of construction, rapidity of execution, clean and neat work, it possesses qualities for economy of time not attained by any other machine. The feed can be regulated so as to cut from shavings as thin as tissue to slices one-eighth of an inch thick. Green so as to cut from shavings as thin as tissue to slices one-eighth of an inch thick. Green (or soft) beef can be shaved equally well, the knife passing entirely through the beef or other article, slicing it off clean and clear. The knife being suspended pendulum-like, or on a pivot, it can be thrown up and sharpened whenever required without removing it from the machine; and as it comes in contact with no other substance than the beef, it will necessarily retain its keep edge a it will necessarily retain its keen edge a great deal longer than if it was continually striking against hard wood. The machine once adjusted requires no attention until a further supply is needed, when the feed can instantly be slipped back and another piece of beef be placed in the box.

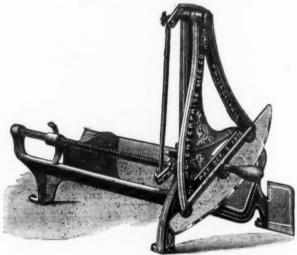
Sheffield and American Competition.

The Ironmonger says: There is no more courteous class of men in the world than the cutlery manufacturers at Sheffield—if you are only careful to select the right time of day for calling upon them. You have

twenty years.

It is true that there is not an unlimited field for the display of educated artistic taste in the production of cutlery, but what room there is has by no means been occupied, partly because of a lack of that taste on the part of the makers, and partly because the efforts that have been made in that direction have not been appreciated as they should have been.

It is impossible to move about among the manufacturers without being impressed with the notion that they are now thoroughly aroused to the dangers by which their trade is threatened, and they are taking the most active measures to avert them. The keen and ever-increasing tide of competition from the Continent and from America is rightly estimated, and what the most active and intelligent of the manufacturers are now doing is to put themselves abreast of the times, and even to anticipate the varying wants of their customers. Their success depends almost entirely upon the men. The bad times through which we have passed have not been without their influence upon them. They are vastly more tractable than they were, and there is much less of that unreasoning opposition to the wishes and instruction of employers. To advantageously compete with foreign houses the articles must not only be good, but they must be light and graceful in form, and if they have also artistic ernamentation all the better. We have just had the pleasure of inspecting at Messrs. George Wosten-holm & Sons several trays of sample razors, which they manufacture in such large numof day for calling upon them. You have but to make the request, and, even though it be at great personal sacrifice and inconbut what struck us was the exquisitely beau-



ENTERPRISE CHAMPION SMOKED BEEF CUTTER.

facturers in the metropolis of Hallamshire have very jolly times of it? Engage them in friendly conversation, get below the sur-face, and it will soon be discovered that everything is not quite so jolly as at first

glance it might appear.
You are not long in their company before you find them inveighing against the ignoryou find them inveighing against the ignorance and prejudice of their workmen—traits of character which have proved almost insurmountable barriers to the progress and development of the trade. Of course there are splendid exceptions to this rule, but the fact remains that the great body of the present generation of cutlers commenced work very young and without any education; they were taught to do things as their fathers and grandfathers did them, and to induce them to alter their modes of procesions. induce them to alter their modes of procedure is a most difficult and almost hopeless task. This is one of the most painful things with which manufacturers have to contend. They may spend any amount of time in de vising improvements in a knife or other article of cutlery, but when they appeal to the men to carry them out every conceiv-able obstacle is thrown in the way; and when all others fail, such a price is asked for the work as effectually necessitates its withdrawal. By way of confirmation on this point, reference has only to be made to the protracted litigation between Messrs. George Wostenholm & Son and some of their workmen with respect to the tern knife. Men who had made that knife declared they could earn as much by it as by making knives similar to it; but then it was

n new pattern, and as such it was opposed.

The determined opposition of the workmen to the introduction of machinery to the trade—even when it was clearly to their immediate advantage—has been most unaccountable. The late Mr. George Wostenholm visited the United States several times; he went through some of the great cutlery manufactories there ; he saw the important es to which machinery was put in them, and on his return he attempted to introduce similar machinery into his own works, but his efforts were only attended with the most partial success. The offer was made to the their noses in this manner.' partial success. The oner was made to the men to do certain work for them at one halfpenny per dozen, the existing method costing them at least threepence per dozen, and they most obstinately refused to avail themselves of the offer. Slowly, however, machinery is creeping into the cutlery workshops, as into all others, and work is now done by it that would not have been thought of a dozen years ago. The manufacturers themselves are among the first to admit that in adhering to old patterns and styles they are not altogether free from blame. When customers have wanted a change and things

venience, they will conduct you through their establishments, explain all the processes of their most interesting business, and on parting will almost beg of you to accept a handsome little sourenir of your visit. Having seen all their surroundings, what more natural than that you should step into the street with the feeling that cutlery manufacturers in the metropolis of Hallamshire have very jolly times of it? Engage them in friendly conversation, get below the surface, and it will soon be discovered that steadily increasing trade with the States be any criterion, with complete success. What has been done by this firm with razors in the American market can be done by other firms with other descriptions of cutlery in workmanship, there are long years of pros-perity yet in store for the cutlery trades of Sheffield—at least, such are the opinions of those of the manufacturers who are most keenly alive to the signs of the times, and most determined to do their part toward securing that desirable result. securing that desirable result.

American Sheet Iron Jackets for Russian Locomotives.

The greatest victory yet achieved by American patent planished sheet iron is its use on the jackets of the 40 locomotives built by the Baldwin Locomotive Works for Russia. As is well known, this iron enters into competition with the well-known Russia iron for such purposes, and is in fact its only rival. That its quality is all that could be desired is strongly evidenced in this fact, for certainly such a house as the Baldwin Works would not put it on locomotives designed for Russia unless they had been thoroughly convinced, from actual experience, that it was the equal of the Russia iron.

There is, however, a statement that several journals have made in commenting upon this fact that should not pass unnoticed. The Mining Journal states it as follows: The secret of manufacturing this sheet ire was stolen from Russia, and in view of this fact it is a little cheeky, to say the least, for our manufacturers to place it right under

This statement is without the least foun Wood's planished iron is not made in the same way as the Russia, by an entirely different process, the vention of the senior partner of the firm of W. D. Wood & Co. and patented by him. All attempts, so far, to make iron in this country by the same process as it is made in Russia, which is no secret, have been commercial failures, the cost of manufacturing being so great as to preclude its sale for profit. Mr. Wood reaches a similar result done differently they have been put off with one excuse or another, and the trade has remained in a more stagnant state than perhaps almost any other branch of industry. It is a somewhat sweeping assertion to make, but we believe it is perfectly true, that there is scarcely an article of cutlery made in by a different process at a much less cost,

Enterprise Champion Smoked Beef Sheffield to-day that could not have the that it is adapted to any use for which Rus obtained there at any time during the last the said is fitted. Mr. Wood has given too much Mr. Wood has given too much tim and labor and spent too much money in purfecting his ir. ", and withal is entitled to to much credit to have it filched away from him by an unchallanged statement that he stole the process of its manufacture

Cheerless Workshops.

One of our English cotemporaries remarks that a stranger who attempts for the first time to find the workshop of the average "little manufacturer" of Sheffield and Birmingham deserves pity. The individual of whom he is in quest may form one of a considerable number located in a conglomeration of buildings, grimy with smoke and dirt more than with actual smoke and dirt more than with actual age. The stranger must make his way through ruts caused by the wheels of carts and barrows, and a yard thick with mud, and after some search probably finds a narrow, dirty and badly lighted staircase. Up this he wends his way, being fortunate if there are not more than half a dozen of rickety wooden steps to climb, with one or more of the steps having been broken with constant use and never replaced. At the end of his journey the "little man" he is looking for is found in a room even more dingy, dirt-begrimed and badly ventilated than the staircase. Anyone at all accustomed to go in and out among the hundreds of working tenements of Sheffield and Birmingham will know that this is not an exaggerated picture. Now that so much at aggerated picture. Now that so much at-tention has been paid to the hours of labor, assuredly some attention should be devoted to the places of labor, and among the numer-ous workshops in Sheffield and Birmingham sub-let for various trades and to various in-dividuals, there is certainly great need for some step in this direction. Many of them are dark, crowded, dreary places, and were it not for the daily call of want, there would be no incentive to labor. We have seen many be no incentive to labor. We have seen many workshops in the towns named that are dark and damp, destroying the health and buoyancy of the spirits of the operatives, when a small sum perhaps would add not only warmth and light, but fill the place with pleasant surroundings. The surroundings of the place of labor have more influence upon the operative than many are aware of. Give a workman clumpsy tools to work with. Give a workman clumsy tools to work with, a rough, dirty, bench to work upon, im-perfect light, scarcely elbow room, and but a rough, dirty, bench to work upon imperfect light, scarcely elbow room, and but little care exercised respecting proper ventilation and warmth, and he will become careless, his work partaking of the character of his surroundings; he will think more of getting his wages at a certain time than of the completion of his work. A few years of this experience will spoil almost any workman, no matter how good he may be. But give him, on the contrary, good tools to work with and an airy and agreeable place in which to perform work, and he will insensibly take more pains with it than in a badly arranged room. In a pleasant room he will, of his own accord, keep his tools and work in good order and more cheerfully perform the task assigned to him. A kind of magnetic influence of the surroundings will infuse itself into the operative, and his work will partake of that and go from him stamped with the impress of the influence thus created. This applies with equal force to the workshops in connection with many ironmongers' places of business. General repairing is often carried on in rooms wretchedly lighted and ventilated. A more profuse use of limewash, the number of wretchedly lighted and ventilated. A more profuse use of limewash, the number of windows increased, and those cleaned oftener than once or twice a year, and better ven-tilation, will do much to induce the workman to take more pains in turning out satisfactory work.

Quincy Copper Mine.—The following summary of the work of the Quincy copper mine, Lake Superior, will be of interest:

Total stamp rock treated at rock house.

"poor rock rejected.
Product mineral. lbs
refined copper. lbs

The company has declared a dividend of \$5 per share or \$100,000. The stamp mill, in 266 working days, worked 75,307 tons of rock holding on an average 2.11 per cent. of copper at a total expense of 94.2 cents per A diamond drill has been very suc fully used for exploring the ground, proving parts of the vein which ance in the drift seemed barren, to be very

St. Gothard Tunnel.-The cost of carrying out the original plan of the new line which is to connect the railways of Germany with those of It ly by way of St. Gothard would, according to a paper just issued from the German Chancellory, amount to 289,000,-000 francs, being 102,000,000 francs in excess of the original estimate. The original scheme, which included several branch lines, has accordingly been cut down to such an extent that the first estimate will only be exceeded by 40,000,000 francs. Of this sum the governments of Germany, Italy and Switzerland have agreed to provide 28,000,-000—Germany and Italy each subscribing 10,000,000 and Switzerland 8,000,000—on condition that the St. Gothard Railway Company provides the remainder, or 12,000,000 francs. The subvention which the three governments had agreed to give on the original estimates was altogether \$5,000,000 francs, and will, therefore, be increased to 113,000,000 francs, while the capital the company will have to raise will be 114,000,ooo francs. These final estimates now only await the approval of the German Federal Council, which it is expected they will shortly receive.

The Belgian minister of public works has pronounced an opinion in the chamber in favor of iron sleepers for railways, and of

Tariff Agitation. - The Philadelphia North American says: The current belief in both Houses of Congress is that no legislation on the tariff can take place this session. We presume this to be correct. But the failure of the scheme will not remedy the mischief inflicted upon trade and commerce by the long agitation and suspense. Setting aside entirely its influence upon domestic industry, this agitation has not in any degree helped that foreign import trade that Wood and his journeymen tinkers profess a desire to assist. On the contary there could be to assist. On the contary there could be nothing more pernicious to foreign commerce than such an unusual crusade about the tariff. Morrison's two years of agitation produced a visible and marked decline in the importations of foreign manufactures, and if this movement is to be renewed every year in this way, foreign commerce cannot possibly stand it.

The Tanners' and Curriers' Journal (English) thus refers to the very perceptible falling off in the British boot and shoe export trade for two years past: The annual returns of our export trade in boots and shoes afford us little ground for congratulating manufacturers on this branch of their industry. The statistics for the past three years show a steady decrease, for whereas in 1875 the value of these goods exported from Great Britain amounted to £1,517,267, from Great Britain amounted to £1,517,207, that respectable figure fell during 1876 to £1,404,075, and during 1877 the amount still further declined to £1,335,429. This is a subject which may well engage the serious consideration of the trade, for while our exports of all leather goods have correspondingly sympathized with this downward tendency, it is not reasyuring to notice that our ingly sympathized with this downward tend-ency, it is not reassuring to notice that our imports of boots and shoes have increased from £240,566 in 1875 to £348,664 in 1877. This important branch of trade is evidently taking a decidedly retrogressive direction, and in view of the increasing vigilance and competition of our cousins and foreign neigh-bors, it behooves our manufacturers to take prompt and concerted action in order to prompt and concerted action in order to meet the coming difficulties of the situation.

The French Minister of Public Works has submitted to the French Chambers a bill authorizing the French government to purchase sundry lines of railway constructed by companies of secondary importance. The total length of the lines thus proposed to be purchased is 1634 miles, and the sum to be paid for them is £20,000,000. A further outlay of £6,640,000 will be required to finally complete the lines.

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One Engine Lathe, 15 in. swing, 6 ft. bed. One
Engine Lathe, 15 in. swing, 7 ft. bed. One Engine
Lathe, 25 in. swing, 16 ft. bed. Three Engine Lathes,
20 in. swing, 8 ft. bed. Two Engine Lathes, 22 in.

swing, 8 ft. bed. Six Turning Lathes, 14 in. swing swing, 8 ft. bed. Six furning Latnes, 14 in. swing, 4½ ft. bed. Three 4-spindle Drills. One 36x36x9 ft. Planer. One 48x48x12 ft. Planer. One 8 in. Shaper. One Gear Cutter. One "Bement" No. 2 Cotter and Key Seat Drill. One new "Hardaway" Bolt Heading Machine, to head up to ½ in. bolts. One new "Hardaway" Bolt Heading Machine to head up to 1½ in. bolts. One Sellers 500 lb. Steam Hammer.

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Published by the author.)

(A copy can be examined in "The Iron Age" Exhibit at the Paris Exposition).

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We find everything "O. K.," and consider it of great use in our office work.

Montreal, March 4th, 1878.

S. H. Jennings, Esq., Deep River, Conn.—
DEAR SIE: The Book of "Combination Discount Tables" was duly received to the per our order. The state of the work. As the result of these tests, we have much pleasure in giving it our hearty commendation, and think it is a work that should be possessed by everyone having occasion in their business to check or arrive at the net results of combination discounts from invoices.

from invoices.

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at a low rate of commission. Correspondence so-licited. He has had three years' experience as Purchasing Agent for

paid for them is £20,000,000. A further outlay of £6,640,000 will be required to finally complete the lines.

An official French return shows that at the close of September, 1877, there were 12,965% miles of railway in operation in France. The corresponding extent of line in operation at the close of September, 1876, was 12,678% miles. It follows that the total extent of new railway brought into working in France in the 12 months ending with September, 1877, inclusive was 287% miles.

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A powerful Hot Press Nut Machine, capable of making five different sizes. Apply or address at once.
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CAUTION.

With reference to the Pueumatic Fire Extinguisher, which is creating considerable interest at present, we would state that the patent was originally granted to A. Allen Murphy and Charles Coppin Hearle in 1875.

In 1876 the patentees conceded one-third to John Taylor, thereby reducing their own interest proportionately and equally.

Shortly after, in the same year, Hearle sold his share in the patent, and all right and title to any alterations or improvements then or ever after to be made on the apparatus, to W. E. Haynard, the transfer being a very strong and carefully worded document in the interest of the present owners. We think it well thus to lay the history of this invention before the public, as it is rumored that an attempt is being made to dispose of some contrivance bearing a similar name, and which may be advanced as the object which was awarded the Medal and Diploma at the Centennial Exhibition, or an improvement on it, and therefore entitled to even greater credit.

There have been several patents taken out on the Pneumatic Fire Extinguisher by the present owners, and these, with the records of transfer, are of course duly filed, so that any attempt to dispose of a Fire Extinguisher here on a pneumatic principle may be readily appreciated by reference to the documents in this case at Washington.

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FRENCH. GERMAN

and SPANISH, and that he bestows special attention upon a strictly correct rendering of Technical Expressions in matters relating to Machinery, Metallurgy, Hydraulics, &c The very bes reference will be furnished from leading manufacturers in this city, Philadelphia and elsewhere, for whom he has translated. If desired, estimates will be procured for the setting up, electrotyping will be procured for the setting up, electrotyping will be procured for the setting up, electrotyping of catalogues, &c., in the above landers. whom ne will be procured for the setting up, will be procured for the setting up, and printing of catalogues, &c., in the above c. Kinching of C. Kinching Co. Metal Reporter of The Iron Age, 83 Reade St., New York.

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of articles in Builders' Hardware desiring to dispose of same by sale or on royalty, on reasonable terms, may address IRONMONGER.
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It improves the working of both poor and good lrons or steels, a better product being obtained by its use than is possible without it. It makes the molten metal more fluid and the product more sound, homogeneous and ductile.

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For castings that are to be tapped and have threads cut upon them, it allows a close, strong iron to be used, leaving it soft for the tool to readily cut.

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The Sherman Process Co., No. 9 Pemberton Square, BOSTON, MASS. See page 17 of The Iron Age, of Oct. 25, 1877.

THE

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PREFACE.

In ten years spent at molding and in the foundry business, and four years in traveling through the United States, in introducing a chemical flux for iron, I have seen the lack of regularity, and the bad effects of it, in the construction and management of foundry cupolas and furnaces, and the want of a guide or rule for their construction and management. At the earnest solicitation of many this small work, with a view of throwing some light upon the subject of melting iron, and the construction and management of cupolas and fur-

naces-a subject that always seems to be en-

shrouded in mystery. All the theories that I have advanced in this work are from notes taken from practical observation while visiting different foundries, in the flux business, and from a chemical knowledge of the laws of combustion and heat, as well as of the laws of chemical affinity of one element for another. By giving a few explanations of causes and effect I hope to establish some regularity in the melting of iron for foundry purposes.

I have also added a few recipes for the forming of alloys, and a general description of all the metals, minerals and gases used in the art of founding, as well as their application, all of which and SPANISH, I have endeavored to place before the reader, clothed in popular language, so that all who can read may fully understand this interesting subject; for this reason, I have endeavored to avoid using any of the chemical and technical terms which are usually applied to this subject, as they often have a tendency to embarras, rather than to enlighted,

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AURIFEROUS MINERALS OF THE BANAT, HUNGARY.

CONTRIBUTIONS TO THE HISTORY OF IRON AND STEEL MANUFACTURE IN THE UNITED STATES.—

MECHANICAL DRESSING OF ORES AND COAL.—II.

E. F. ALTHABS.

NOTES ON WEARING TESTS OF STEEL.—

T. T. MORRELL.

A FLEXIBLE SANDSTONE FOR OPEN-HEARTH FURNACE ROOFS.—

W. B. CALDWELL, JR. ON THE EXPULSION OF PHOSPHORUS IN PUDDLING.

STRENGTH AND DUCTILITY OF IRON AND STEEL.

STRENGTH AND DUCTILITY OF IRON AND STEEL BOILER PLATE AT DIFFERENT TEMPERATURES.

THE BICHEROUX FURNACE,-ROLLING HOOP IRON.
AUTOMATIC CHARGING AND DISCHARGING MOVEMENT FOR JIGS.
NEW MANGARESE REACTION.—TEMPERATURE OF THE EARTH IN A MINE.
KRAFF AND SAUVE'S METHOD OF STEEL MAKING—THE WEAKEST POINT OF WIRE ROPES IN HOISTING APPARATUS.
SODIUM AMALGAM.—TREATMENT OF TIN PLATE SCRAP.—COLLARS FOR ROLLS.

The April number of the Metallurgical Review is replete with information valuable to those who

are interested in metallurgical pursuits. It has been a frequent source of regret to metallurgists who are actuated by a desire to improve upon existing methods of manufacture, that only those attempts at development which have been either wholly or in part successful appear in print. Numerous failures which might prove invaluable as a warning to the original experimenter, are either never heard of or are placed in a wrong light by prejudiced observers. The promoters of the Metallurgical Review, therefore, feel confident that Prof. Geo. W. Maynard's review of Smyth's process of purifying iron and steel by the use of blast impregnated with certain chemi-

cals, will be read with great interest, Mr. Alex. L. Holley contributes a paper on the strength of wrought iron as affected by its composition, and by its reduction in rolling. It is a summary of the results obtained by foundrymen, I have undertaken the publication of United States Test Board in subjecting fourteen standard wrought irons to numerous analyses and to more than two thousand tensile tests. It treats of the effect of chemical composition upon welding

and hardness

The history of iron and steel manufacture in the United States is a topic which no one is so preeminently able to do justice to as Mr. James M. Swank, the well-known Secretary of the American Iron and Steel Association. The first use of bitu minous coke, of anthracite, of raw bituminous coal and of Lake Superior ore in the manufacture of pig iron is, each separately, made the subject of a careful compilation of data which only a long and patient research could have made available. The beginning of the manufacture of cast steel, the introduction of the Bessemer and Siemens-Martin processes of rail rolling, and the beginnings of iron shipbuilding, are treated with great accu-

The second installment of Mr. E. F. Althans' report on the mechanical dressing of ores and coal contains the principles of jigging operations, slime process on tables, and Krom's pneumatic jigging. T. T Morrell and W. B. Caldwell, Jr., furnish shorter articles on wearing tests of steel, and a flexible sandstone for open-hearth furnaces, re-

Besides the above, there are a number of articles of interest and value, noting matters pertaining to current progress in metallurgical science at home

Trade Report.

The week under review has been dull in all departments of the financial markets, and there are few events of general interest to report. The money market has been firm, with rates to borrowers on call, 4 @ 6 per cent. The rate on prime business paper is 4 1/2 @ 6 per cent.

The gold market has been without important feature, and the fluctuations have been very slight. The following table shows the

														chest.	Lowest
Thursday .					0					۰	0			1011/8	TOR
Friday				0					×	0	٠	٠		1011/8	101
Saturday			0						×	۰	٥		,	TOITS	1011/
Monday				,	ě.						٠			TOT 1/4	TOI /
Tuesday			0	,	a				0					101/8	IOI
Wednesda	Ÿ						,			,				1011/8	TOI

The bond market has been steady and strong for Governments, notwithstanding the continued importations. These had the effect of advancing sterling exchange to 4.891/2 for demand bills, and to 4.871/2 for sixty-day bills. With bills not obtainable below these rates gold would be exported, but the actual rates yet rule a little below the shipping point. The government bonds imported have been in part distributed, but most of them have been deposited in banks and money borrowed on them.

Railroad bonds have been fairly active at

slightly higher quotations. The stock market has been irregular, but moderately active, with principal dealings in Western Union, Lake Shore, D. L. & W. St. Paul. Pacific Mail and Northwest. We give below the closing quotations of active

The weekly statement of the New York banks shows a decrease in total reserve of \$578,900 and an increase in surplus reserve of \$207,750, the latter now being \$16,308,-575. The statement is notable for the fact that it shows that the New York banks have a little over \$10,000,000 more gold than they have legal-tender notes. The gold average from this time forward ought to be a falling one, as we are near to the specie shipping point, and as the Treasury will probably take in more gold than it will pay out until

The following is a comparison of the bank averages of the last two weeks:

The following were the foreign trade movements for the week:

IMPORTS.

L O	L MAGNE OF	ided march	23.	
	for week. reported.	1876. \$5,610,582 74,187,632	1877: \$7,638,271 68,849,724	\$6,893,80 63,308,27
Since	Jan v	\$70.708.214	\$76,487,005	\$70,202,07

Included in the imports of general merere articles valued as follows

	Quar	atity.	Value
Brass goods			\$2,756
Bronzes			2,410
Chains and anchors			1,418
Copper			3,283
Cutlery			21,620
Guns			10,833
Hardware			2,552
Iron, pig, tons			3,106
Iron ore, tons			582
Iron, other, tons			16,909
Metal goods			21,140
Nails			. 57
Needles			8,845
Platina			981
Per. caps			3,077
Saddlery			497
Steel		1448	13,287
Spelter			1,464
Silverware			133
Tin, bxs			66,943
Tin, 2,298 slabs			30,636
Wire			3,338
Zine	24	199	1,293
EXPORTS, EXCLU	SIVE OF SPE	CIR.	
For week ended Man	ch 26:		

For the week Prev. reported	1876. \$4,449,173 50,452,290	\$3,952,107 56,700,002	1878. \$6,948,985 75,187,785
Since Jan. 1			\$82,136,770
	EXPORTS OF	SPECIE	
For week er	- A - A M. A.		
For week en	nded marc	n 23:	
Total for the we	ek.,		\$168,700 2,444,95
Total for the we Previously report	ek rted		2,444,95
Total for the we Previously report Total since Jan. Same time in 18	ek rted z, 1878		\$2,613,65 3,343,60
Total for the we Previously report Total since Jan. Same time in 18 Same time in 18	rted 1, 1878 377 376		\$2,613,65 3,343,60 11,630,95
Total for the we Previously report Total since Jan. Same time in 18 Same time in 18	ek rted z, 1878 377 376		\$2,613,65 3,343,60 11,630,95 15,686,34
Total for the we Previously report Total since Jan. Same time in 18 Same time in 18 Same time in 18 Same time in 18	ek rted z, 1878 377 376 375		\$2,644,95; \$2,673,65; 3,343,60; 11,630,95; 15,686,34; 7,530,87;
Total for the we Previously report Total since Jan. Same time in 18 Same time in 18	rted		\$2,613,65; 3,343,60; 11,630,95; 15,686,34; 7,530,87; 13,520,30

Erle Pref.

Asked.
118%
1071/2
1071/
104 %
10436
10736
10736
10034
X 3Q36
205%
105%
1045
1045
3031/
1031/
100%
1013
otations

The following were the closing quo	tation
of active shares :	
Bid.	Aske
Atlantic and Pacific Telegraph 1854	10
Chicago and Northwest 45	
Pref 71	45
	71
Chicago, Rock Island and Pacific 102%	103
Chicago, Bur. and Quincy	IOI
Col., Chic. and Indiana Central 2%	
Clev., Col., Cin. and Ind 273%	28
Cleveland and Pittsburgh 7334	75
Chicago and Alton 7134	72
" Pref 98	300
Consolidation Coal	98
Canton	18
Delaware, Lack. and Western 525%	52
Delaware and Hudson Canal (2	
Express-Adams	52
American 4814	103
	49
United States 30	51
Wells, Fairgo & Co 6078	87
Erie 10%	2.2

Iarlemt481/2	14934
Iannibal and St. Joseph 111/8	2138
" Pref 25%	26
llinois Central 75½	7534
ansas Pacific 834	9
ake Shore 64%	64
fichigan Central 653/a	6536
forris and Essex 25	751/2
filwaukee and St. Paul 42%	43
" " Pref 721/4	723%
Cariposa1%	9
1 Pref 134	3
New York Central	1061/
New Jersey Central 141/2	15%
New Jersey Southern	134
Ohio and Mississippi 834	8 %
" Pref 15	18
Pacific Mail 1858	1834
'anama 125	130
Pittsburgh and Fort Wayne 90	91
Quicksilver 17	18
" Pref 30	31
St. Louis and Iron Mountain 634	73/4
St. Louis Kansas City Northern 434	8
" Pref 83	23%
Toledo, Wabash and Western 171/2	1954
Inion Pacific 693/2	69 %
Western Union Telegraph 791/4	7931
	441

GENERAL HARDWARE.

Although the volume of business is far from satisfactory, still it is pleasant to note a slight improvement over the previous week. Letter orders are reported more abundant and travelers speak more hope-

The demand for Nails continues light, but prices, so far as we can hear, are fully sustained. We continue to quote 10d. to 60d., \$2.50, net.

At a meeting of the Western Nail Association, held in Pittsburgh to-day, it was agreed to further curtail production by shutting down the mills for two weeks in April.

The Table Cutlery Manufacturers' Association of the United States held a meeting in this city on the 26th inst., at which every establishment in the association was represented. The existing lists were confirmed, and the only changes adopted were in the terms of sale, which will be found in their circular which we print below, and which will be issued under date of April 1. The following circular explaining the future action of the association in the matter of insolvents, will be read with interest by the trade

[Circular No. 4.] Office of the
Table Cutlery Manufacturens' Association
Of the United States, 88 CHAMBERS STREET, NEW YORK, April 1, 1878.

At a regular meeting of the Table Cutlery Manufacturers' Association of the United States, held March 26, 1878, the following terms of sale were adopted:

Limit of credit, 60 days. Cash within 10 days, 4 per cent. discount. No discount allowed after 30 days.

All invoices to date from time of shipment and time to count from date of invoice. LANDERS, FRARY & CLARK. MERIDEN CUTLERY Co., JOHN RUSSELL CUTLERY Co., AMERICAN CUTLERY Co., LAMSON & GOODNOW MFG. Co., BEAVER FALLS CUTLERY CO.

[Circular No. 5.] At a regular meeting of the Table Cutlery Manufacturers' Association, of the United States, held at New York, March 26, 1878,

the following resolutions were adopted:

Resolved, That we view with alarm not only the increased number of failures throughout the country, but more especially the ease with which compromises and set-tlements are effected, enabling the bankrupt debtor to ruinously compete with his neighbor who pays 100 cents on the dollar. In justice therefore to every solvent concern.

Resolved, That from this date we will not consent to the settlement of any debt due us, for less than 100 cents on the dollar-to enable the debtor to continue in business, except in case of absolute misfortune which could not have been foreseen or prevented. All such cases to be referred to our Executive Compiltor. tive Committee, whose decision shall be final. In cases where we are forced by composi In cases where we are forced by composi-tion in bankruptcy or otherwise to receive less than 100 cents on the dollar, we agree not to sell to such parties except for cash.

LANDERS, FRARY & CLARK. MERIDEN CUTLERY Co. JOHN RUSSELL CUTLERY Co. AMERICAN CUTLERY CO LAMSON & GOODNOW MFG. Co. REAVER FALLS CHITLERY

Government bonds at the close were quoted rious patterns, Road or Grading Plows, &c. : REVOLVING SCRAPER COMPANY OF COLUMBUS, OHIO, WORK.

- 1	DISCOUNT BREAK FOR 1070.
I	Doty's Automatic Revolving Scrapers.
-	30 Inch Iron Bottom, each . \$16.50 30 "Steel "18.00 33 " 19.00 19.00 26 Discount 25 per cent.
N	Plows.
	Road or Contractor's Plow, each
ı	Jacobs' Patent Barrows.
	Railroad or Canal \$20.00
	Ore or Mortar 30.00 Wharf or Oyster 33.00
ı	Stone, bent handles
ı	Stone, straight
	Farm or Garden, No. 4, large size 60,00
	Farm or Garden, No. 3, medium 54.00
	Terms: 60 days from date of shipment

payable here in bankable funds, or New York exchange; subject to sight draft, without notice, if not paid at the expiration of the time stated. Bills of lading accompany all invoices, and we have contracts with

special rates of freight. of Philadelphia, Pa., have issued in conve- in present quotations of Iron and Steel Rails nient form an illustrated catalogue of their being altogether favorable to the latter. We pointed Smoothing Irons, Fruit and Jelly of payment, &c.

Presses, Coffee, Spice and Drug Mills, Measuring Faucets, Meat Cutters, Bunghole

Henry L. Butler, No. 103 Chambers street. quotes the "Cottage Fly-Trap" at \$6 per dozen, less discount 25 per cent. to the trade. This Trap, which was first introduced in this market about two years ago, has met with great favor by the trade, and is in reality a good Fly-Trap. It is simple in its construction, and contains nothing that is liable to get out of order. The Traps are put up in and 173% to now closes firmer and 173% to nomine poxes of one dozen.

We have received the following circulars which explain themselves:

PHILADELPHIA, March 20, 1878. To the Hardware Trade: You are hereby notified that on and after this date the list price of our Patent Measuring Faucet, will e reduced from \$42 per dozen to \$36 per dozen.

ENTERPRISE MANUFACTURING CO.

NEW YORK, March 26, 1878. DEAR SIR.—We have this day removed our New York office from 82 Chambers street to 84 and 86 Chambers street, arranged with the Wiebusch & fully with the more settled condition of the weather.

The demand for Nails continues light, but stock of our goods at an early day. Orders may be sent to the Wiebusch & Hilger Hardware Co., or direct to factory, and will reday as per cable, Lon ceive prompt and careful attention

Respectfully yours,
FRARY CUTLERY COMPANY. JAMES D. FRARY, Pres.

Office of the McKeesport Iron Works, No. 111 Water street, Pritsburgh, March 15, 1878. DEAR SIR: In offering our reduced prices ermit us to submit for your consideration a few facts that have been demonstrated since

the introduction of our Patent Planished Sheet Iron, in 1873. By using the very best Charcoal Bloom ron, the employment of experienced workmen, and the exercise of great care in its manufacture, we produce an Iron handsomer in appearance than the imported Russia Iron, and equal to it in durability and working qualities. This is acknowledged by all unprejudiced persons who use it, and is indicated by the following resolution of the National Association of Stove Manufacturers,

at their meeting in New York, Jan. 16, 1878: "Resolved, That we consider it the duty of all American manufacturers to bring into of all American manufacturers to bring into their consumption, as much as possible, home products, especially when they can procure them at a reduced cost and of equal quality with foreign. We therefore take the state of the them at a reduced cost and of equal quality with foreign. We therefore take the state of the states have been 8217 piculs, against 200 last year; 4605 in January, 1876; 6895 in 1872; 5133 in 1874; 3572 in 1873; 3424 in 1875; 5133 in 1874; 3572 in 1873; 3424 in 1875; 5133 in 1874; 3572 in 1875; 3424 in 1875; manufacturers, in recommending to the use of stove makers throughout the country, American Planished Iron, at the same time

cess in producing an article of such good quality and beauty of finish."

We make all sizes up to 72 inches long.
Our standard size is 60 inches long by 28 within the producing the standard size is 60 inches long by 28 within the producing the standard size is 60 inches long by 28 within the producing the standard size is 60 inches long by 28 within the producing the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 28 within the standard size is 60 inches long by 30 inches long by

prices for the imported article, and notwithstanding the unprecedentedly low prices at which Russia Iron has been offered in the past season, our sales have been constantly increasing, and were greater this year than any preceding one.

Price. -A, or first quality, 101/2 cents per pound; B, or second quality, 91/2 cents per pound.

Terms.—Net cash within 30 days from (2 § 5.12) date of invoice, delivered f. o. b. cars in from

nings, of Deep River, Conn., which will be "Special Notices" on the oppofound among site page. Mr. Jennings has had the entire charge of the sale of Russell Jennings' Patfrom all parts of the United States for this They write from England under

for future delivery based on ruling quotations. We quote Foundry No. 1, \$18 @ \$18.50; Foundry No. 2, \$17 @ \$17.50; Gray Forge, \$16 @ \$16.50.

Scotch Pig.-In this branch of the trade the transactions have been limited to a small retail business, the aggregate of which is not worthy of mention. We quote Glengarnock, \$25; Eglinton, \$23.50, and Coltness, \$25.50 @ \$26.

Rails.—Some small lots of Steel Rails railroad companies to all principal points at have been sold during the week at prices which have not transpired; for Iron there The Enterprise Manufacturing Company is little or no demand, the trifling difference

Old Rails.-In the absence of business we continue our quotation of \$18 @ \$19, which is the nominal price here.

Scrap.-We quote No. 1 Wrought from yard \$22.

METALS.

Copper -Sales are no sales repor ing the winter sea land shipments fro to but 1,500,000 T during the correshipped thence 6,000,000 pounds shipped to Europe ooo pounds in present stock here cover the consur As for further su falo for the Lak and we cannot is Best Selected at £ given way 10/, no manufactures of meet with only mo supported English Yellow M now 15¢, currence price there is an ac New Sheathing Co and Bolts, 28 20¢ ; Yellow Mete Yellow Metal She

Tin .- The mark at present. From a statistical point of view, so far as this side is concerned, the immeso far as this side is concerned, the immediate future, it is true, seems reassuring enough, but the spring demand not yet manifesting itself, statistics go for nothing. We quote in large lines, gold, Straits, 14½¢ @ 14¾¢; English Refined, 14¾¢; Common ditto, 14½¢; and Banca, 17½¢, all gold. The foreign markets remain sustained; as per cable, Straits at London, is quoted £64; at Singapore, \$48, \$50 per yell and Banca et al. 1875; 5133 in 1874; 3572 in 1873; 3424 in 1872; 2753 in 1871; and 1355 in 1870. Production in the Straits in 1875, 251,000 piculs; American Planished Iron, at the same time of the manufacturers (W. D. do., showing a continued and a very considerable reduction in the output of the mines. From England we have the following by mail, dated March 14: "The inprovement reported in our last continued till within the last day or two. Smelters are fairly booked, and not being in immeour standard size is conclusering by 20 inches wide, which makes, without waste, three joints of 6-inch pipe.

The presence of the Planished Iron in the market prevents the demand of exorbitant price of the incorted article article. Bars. Straits and Australian were firm at yesterday at £64. 5/ spot, and £64. 10/ forward, 5/ below late price." Tin Plates.—
The tendency remains a drooping one, both here and, as we hear by cable, in England. Dealings here are but moderate in extent. We quote in gold, per box, ordinary brands, large lots: Charcoal Bright, \$5.871/4 @ we quote in gold, per 503, ordinary brands, large lots: Charcoal Bright, \$5.87½ @ \$6.25; ditto Ternes, \$5.75 @ \$6; Coke Tin, \$5.12½ @ \$5.37½, and ditto Ternes, \$5.22½ @ \$5.25. Under date 14th inst. they write from Liverpool to the following effect: date of invoice, delivered f. o. b. cars in Pittsburgh.

To secure lowest rates of freight, we will in all cases ship at owner's risk unless otherwise ordered, and for security all Planished Iron will be packed in our new patent iron cases.

Yours, respectfully,

W. D. Wood & Co.

We invite the attention of our foreign subscribers to the advertisement of S. H. Jennings, of Deep River, Conn., which will be lead to the following effect: "We have again been able to reduce prices of a few brands where order books are running down, and the trade is very quiet for all classes of plates. Charcoal Tins of fair quality are procurable at 18/3 @ 18/6 for half and third cross specifications; Ternes, 17/6 @ 17/9 for all Common; Coke Tins, B. V. grade, are freely offering at 16/3, and can in some cases be had for 16/; Ternes are more firmly held at from 15/ @ 15/3.

Lead .- Toward the close of last week there were sold 200 tons Common Domestic, 100 of which April delivery and 100 May, at charge of the sale of Russell Jennings' Patent Extension Lip Auger Bits since 1866, and has gained considerable experience as Export Factor, being, as will be seen by his advertisement, actively engaged in this business. We noticed his book of "Combination Discount Tables" on page 18 of our isthere are a great many sellers of later decisions. tion Discount Tables" on page 18 of our isthere are a great many sellers of later de-The Revolving Scraper Company of Columbus, Ohio, have issued the following price list and discounts for their specialties. They have also issued a handsomely illustrated pamphlet showing their Automatic Revolving Scrapers in operation, Barrows of values of the United States for this They write from England under date 14th of the United States for this They write from England under date 14th of the United States for this there are a great many sellers of later desliveries better disposed to go on selling; if anybody wanted a larger lot on the spot to-day, he would in all likelihood have book are substantiated by well-known firms, both in the States and Canada. We are estimate at 2500 tons to-day, and there are afford the spot to-day, he would in all likelihood have book are substantiated by well-known firms, both in the States and Canada. We are estimate at 2500 tons to-day, and there are a great many sellers of later despectations. IRON.

American Pig.—We cannot report the slightest improvement in the condition of the Iron market this week. The only business transacted since our last writing has been in small parcels for early delivery. In the present condition of the Coal trade makers of Pig Iron decline booking contracts for future delivery based on ruling quotations.

Inst., as follows: "Lead is still characterized by great dullness, and lower prices would again be workable. We quote good soft English Pig, £18 @ £18. 5/; Sheet, £19. 5/; Pipe, £20. 5/, less 3½ \$ free on board. Spanish Pig, without silver, £17. 12/5, less 2½ \$/, ex quay." Manufactured is in moderate request at former prices. We quote, Bar, 5½¢; Pipe, 6¢; Sheet, 6½¢, and Tin-lined Lead Pipe, 15¢; all less 10 \$/, to the trade.

Snelter and Zine—The stewartion in "Lead is still characterinst., as follows:

Spelter and Zinc.—The stagnation in Domestic Spelter has not been broken, and we quote the same 5 1/4 \$\phi\$ @ 5 1/6 \$\phi\$ currency; for Refined, the price of 8 1/2 \$\phi\$ @ 9 \$\phi\$, currency may be quoted. According to advices from Vienna, dated March 7, now before us, Refined American Spelter is rapidly superseding, for cartridge purposes, all European sorts, not only in Austria, but also in Germany and Russia, and they begin to feel the competition most seriously

Sheet Zine remains very quiet. Mosselman is held at 8 ¢ gold, and Domestic 6 ¾ ¢

currency. Nickel.-Some sales seem to have been effected at \$1.35, currency, 7 b. write from Vienna under date 7th Nickel is abundantly offering at 4.70 florins Hardware specialties, in which they show a fine assortment of Cold-handle Double- mill, \$32 @ \$37, according to quality, terms per kilo."

Archives abundantly therial (German) marks, the is equal to 8 Imperial (German) marks, and Iron, at which is London quotes cubes, £18 @ £20

Antimony.-Cookson, still scarce, on selling in small parcels at 13¢, gold; fers of 1234¢, gold, have been declined. At ondon it is firm at £52. The recent rise in England has, it appears, been caused by the demand for Russia. Hungarian is quoted 60 @ 63 florins the 100 kilos. at Vienna.

EVPORTS

	EXPO	AD TO
have amounted for the	LAIL	1613
	Gothenburg.	Quan. Value.
300,000 pounds Lake Su-	o o meno m y .	Ag. imp., pgs. 224 \$3.958
a 171/84, and the market	Quan, Value.	Cartridges, cs. 2 96
at 17¢ @ 171/4 for Lake,	Hdw., pkgs. 332 \$5,240	
	Ag. imp., pgs. 29 440	
ally, for Baltimore. There	Clocks, cs 33 490	
ted of futures, nor is there		
for them. The position of	Hamburg.	3 -33
them. The position of	Copper, cks. 23 5,925	British West Indies.
le is strengthening. Dur-	Rifles, cs 3 390	Are I man whom a
ison just ended the over-	Clocks, cs 127 2,435	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
om Lake Superior amounted	Mf. Iron, cs 53 1,880	
	Plt'dware, cs. 5 660	24
pounds, whereas last year	Cop'r ore, bbls 43 5,000	United States of Co-
ponding period there were	S'dpaper, bbls 25 215	lombia.
his way altogether some	Ag. imp., pkgs 356 8,275	Cutlery, cs 37 1,565
	Hdw., pkgs 77 2,932	
The state of the s	Sew, mach, cs. 20 736	Mach'y, pkgs. 82 4,246
1,750,000 pounds, or 250,-	Mach'y., pkgs 60 12.154	Pumps, pkgs 4 385
cess of our receipts. The	Spelter, slabs. 3444 11,088	
e is estimated at 2,500,000		
	Bremen.	Iron plates 30 371
esenting merely enough to	Ag. imp., pkgs 322 9.900	Nails, kegs 10 52
nption of a single month.	Pumps, pkgs 4 400	Clocks, cs 1 128
oplies from Lake Superior.	Hdw., pkgs 2 55	Saddlery, cs. 1 100
first steamer will leave Buf-	Pl't'dw're, pgs 2 375	Guns, cs 2 174
	Cr'ge mtl., pgs 11 400	Copper, cs 1 111
e only about May I next,	Nickel, bxs 1 172	Lamps, pkgs. 6 408
n any event expect new	S'dpaper, cs 1 226	Pl'td ware, cs. 7 771
re the 10th or 15th May.	Belting, case. 1 806	Iron safes 2 150
equence is that there are	British Possessions	Mf. iron, pkgs. 199 2,115
equence is that there are	in Africa.	Revolvers, cs. 5 971
ers willing to accept 17¢.	Mf. iron, pkgs 575 7,629	Cartridges, cs. 5 182
don remains steady, with	Mr. Hon, Page 575 7,029	C'ge mtls., pgs 2 763
71, while Chili Bars have	Danish West Indies.	Japan.
ow being quoted £64. The	Cartridges, cs 10 300	Mf inon plane
	Hdw., pkgs 16 405	
Copper and Yellow Metal		
derate attention, but prices	Dutch West Indies.	
t the combination rates.	Hdw., pkgs 15 118	Hdw., cs 37 667
Metal Sheathing is lower,		Coal, tons 90 352
	British North Amer-	
y, in bond; at the easier	ican Colonies.	Venezuela.
active demand. We quote:	Nails, cs 3 187	Sew. mach. cs. 1 20
opper, 26¢; Braziers, 28¢,	Tinware, ca 50 352	Hdw., Cs 56 1,172
Yellow Metal Sheathing,	Gas fixt., bx 1 112	Mach'y., cs 3 134
	Clocks, cs 3 131	Cuba.
al Bolts, 25¢, and English	Coal, tons 300 1,500	
athing, 15¢ in bond.	Em'ry wh'is, cs 2 56	Coal, tons6804 10,777
	Hdw., pkgs 111 3,125	Nails, kegs 80 321
ket is depressed and scarce-	C'ge mtls., pgs 8 350	Mach'y, pkgs. 100 7,170

ly anything is transpiring in the metal just Mf. iron, pkgs. 127 Mf. steel, pkgs 2 Liverpool. CS.... 94 y, CS... 9 s, CS... 10 4,041 1,820 300 12,364 800 2,871 Lamps, cs... 19
Ag. imp., pkgs 457
Pistols, bxs... 4
Clooks, cs... 56
R. R. cars... 4
Rifles, cs... 2
Sew. mach., cs 3
Castings cs... 3 Br's tubes, cs. Mf. iron, pkgs. R. R. mtls.pgs. Sew. mach., cs Hdw., cs. Windmill La'p g'ds, cs.. London. mps, es... Clocks, Hdw., cs.... Metal, pgs... 3 Metal, pgs... 3 Hayti. mach., cs h'y, cs.... tyres.... Mach'y, cs...
Iron tyres...
Mf. iron, pkgs
Hdw., cs....
Nails, kegs... Rifles, case... 1 Ag. imp., pkgs 56 Glasgow. Ag. imp., pkgs 2 Hdw., Qs..... 24 China. Havre. Mach'y, cs.... Hdw., cs..... Ag. imp., pkgs 1616 Brit. ware, cs. 5 Pl't'd ware, cs. 1 Scales, pkgs. 118 Mach'y, pkgs. 1 Hdw., cs. . . . 33 Mexico.

G'dstones, pgs 282
Ag. imp., pkgs 43
Nails, kegs... 712
Sew. mach., cs 179
Tacks, cs... 42
Per. caps, cs... 1
Rivets, cs... 3
Belting, rolls. 1 Lisbon. Burners, cs... 1 130 Mach'y, cs.... 1 300 British Australia. British Australia.
Pumps, pkgs. 12 612
Clocks, cs..... 124 1,933
Mf. iron, pkgs. 155 1,869
Hdw., cs.... 1153 21,071
Brit. ware, bx 9 885
Cutlery, bxs. 4 177
Nails, kegs.... 96 310
Ag. imp., pkgs 324 7,733
Lamps, cs.... 19 7,735
Sew. mach., cs. 48 3,663
Plc'd w're, pgs 84 1,946
C'ge mtls., pgs 84 1,946
Wringers, cs... 12 345
Mach y, pkgs. 19 1,431
Saddlery, cs... 9 1,114 Syringes, cs... Pl'td ware, cs. Cutiery, cs.... Pistols, cs.... Ir'n w. r'pe,cls 29 Firearms, cs. 3 Spikes, kegs... Pistol hdls, cs. Silverware, ca Cartridges, cs. L'mr. Ag. mp., pags 324 7,333 Lamps, cs. ... 19 775 Sew. mach., cs 48 3,663 Plt'd w're, pgs 92 15,630 C'ge mtls., pgs 84 1,046 Wringers, cs. 12 345 Mach y, pkgs. 19 1,431 Saddlery, cs. 9 1,114 Cartridges, cs. L'mpg'ds, pgs Mf. iron, pkgs. Mach'y., pkgs. Clocks, cs. Pumps, pkgs. Revolvers, cs. Brazil. Mach'y, es. 12 1,050 Pumps, pkgs. 6 235 Nails, kegs. 40 100 Clocks, es. 18 30 Hdw., es. 216 2,852 Cutlery, es. 57 1,640 Lamps, pkgs. 5 70 Sew. mach., es. 50 666 Antwerp

IMPORTS Sampson Geo. G. Pig, tons, 100 Shepard Reuben, Bundles, 94 Order

Cases, 4 Bloom & Brown, Curley J. & Bro. Cutlery, cs., 1 Colt's Fire Arms Co Castings, pkgs., 5 Duyckinck W. C. Cases, 1 Drexel Morgan & Co. Drexel Morgan & Co.
Cutlery, cs., 1
Casks, 1
Dale, John G.
Tools, bxs., 1
Ferris F. J. C. & Co.
Wire, cks., 2
Gray & Danforth,
Emery, kegs, 8o
Emery, cases, 3
Harrison Bros. & How-

Krauss & Hahn,
Grindstones, 221
Grindstones, cks, 52
Mason J. W. & Co.
Wire rope, coils, 32
MeCoy & Co.
Mdse., pkgs., 4
Pine, Forwood & Co.
Dackages, 11
Dackages, 11 Pine, Forward III Pagkages, 11 Struller, Law & Co. Cartridge cases, cs.,4 Wiebusch & Hilger Hdw.

all Order, but Wire, bdls., 442 Arms, cs., 2 Casks, 1 Files, cks., 2 Bundles, 150 Wire netti'g, rolls, 64 Iron.

Goddard Bros.

4,188 Porto Rico.

Hdw., cs..... 13 Ag. imp., pkgs 8 Nails, kegs... 123 Grindstones... 30

Boke" Hermann & Co. Guns, cs., 3 Burkinshaw W. D. Order, Sheet, bdls., 25 Steel. Brown William & Co. Bundles, 138 Benedict E. Cases, 22 Cases, 22
McCoy & Co,
Manganese, cks., 5
Prosser Thomas & Son
Tyre forgings, 49
Woodford W. O.

Bundles, 10 Bars, 10 Cases, 13 Order, Rods, bdls., 108 Casks, 22 Packages, 21 Bundles, 39 Cases, 6 Bars, 21

Co. Anvils, cutlery and

Boxes, 100
Jansen John A.
Spiegel, kilos., 156,Spiegel, kilos., 156,Lang W. Bailey & Co.
Bars, 7
Navlor & Co.
Spiegel, tons, 250
Bars, 3614

Metals. Brown Bros. & Co. Tin, slabs, 1276 Brown Bros. & Co.
Tin, slabs, 1270
Byrne Joseph & Co.
Tin plates bxs., 185
Bruce & Cook,
Tin plates, bxs., 326
Terne plates, bxs., 326
Terne plates, bxs., 326
Tin, ingoots, 390
Cortis R. J.
Tin, bxs., 200
Cort N. L. & Co.
Tin, bxs., 1226
Meyer Moritz,
Lead, bars, 1221
Naylor & Co.
Tin plates, bxs., 1685
Phelps. Dodge & Co.
Tin plates, bxs., 1812
Stroud W. L.
Tin plates, bxs., 100
Vatable H. H. & Son,
Serap metal, hlds., 8

Vatable H. H. & Son, Scrap metal, hhds., 8 Wheeler E. S. & Co. Tin, bxs., 650 Order, Tin plates, bxs., 735 Lead, pigs., 510 Antimony, cks., 50 Tin, ingots; 382 Tin, bxs., 530 Spelter, plates, 2420 Without Bills of Lading, Tin plates, bxs., 260 Tin plates, bxs., 30

COAL.

The small amount of Coal disposed of at yesterday's sale, and the fact that a rise in prices had been promised for April, induced a rise in the price at the auction. This has resulted in a considerably better feeling in he trade. Some dealers report a considerable improvement in business for the past few weeks. The manufacturers, however, are said to be pretty well stocked up at the present time, although they are reported as coming into the market quite freely of late. The following is the report of the Coal sale by the Delaware, Lackawanna and Western Reilroad Company, for which we are in-Railroad Company, for which we are in-debted to Mr. F. E. Saward. The amount of Coal disposed of was 40,000 tons, deliverable during the month of April. The prices were as follows:

5,000 tons	Steamer	sold	at.				\$3.25	0	
5,000 tons	Grate sol	d at					3.20	0	\$3.25
5,000 tons	Egg sold	at							
20,000 ton	s Stove so	ld at			0.0				3.72 1/2
5,000 tons								-	3.20
The fo	llowing	is	a	COI	mį	pari	son	wit	h pre-

vious sales this year :

Size.	Jan. 30.	Feb. 27.	March 27
Steamer	\$3.10	\$3.21%	\$3.25
Grate	3.12 1/2	3.07%	3.213
Egg	3.14	3.15%	3.40
Stove	3.57	3-55	3,69
Chestnut	3.11	3.00	3.18
Pea		2.12/2	

Since the sale the Lehigh prices are quoted at \$4 for Lump, \$3.75 for Broken and Egg, \$3.90 for Stove and \$3.25 for Chestnut. The Pennsylvania Coal Co. quote \$3.35 for Lump, Steamer and Broken, \$3.45 for Egg, \$3.75 for Stove, and Chestnut, \$3.10. Wilkesbarre, &c., quote \$3.50 for the larger sizes, and \$3.60 for Egg, \$3.90 for Stove, and Chestnut, \$3.20. This increase in the prices is quite likely to turn the attention of manufacturers again toward Bituminous Coal.

OLD METALS, PAPER STOCK, &c.

The Old Metal market still continues very quiet. Copper, Brass, Lead and Yellow Metal are in very little request, and the prospect of lower rates deter many from buying. Composition and Wrought Scrap is taken to some extent, but consumers are not disposed to anticipate future wants. The Rag and Paper Stock market is still laboring under a season of dullness, and

there is no strength to quotations.

The purchasing prices offered by dealers for Old Metals are as follows:

Copper, heavy	per D. \$0.13 @	
Copper Bottoms	44 .II @	
Yellow Metal	11 .10 Ch	
Brass, heavy	44 .00 1/4 (A)	
Brass, light	60 60	
Composition, heavy	" .xx34 @	
Lead, solid	" .023/4 @	
Tea Lead	** .081/2 @	
Zine	" .03 @	
Pewter, No. 1	" .00 @	
Pewter, No. 2	" .07 @	
Wrought Iron	prton. 17.00 @	
Light do		
Stove Plate	44	
Machinery do		
Grate Bars	44	
The prices current for	r Rags. &c., are a	u

The prices current for Rags	, &c., are as
follows:	
Canvas, Linen per	D. 3 C. @ 3%C.
" Cotton, No. 1 "	5%c. @
" No. 2	21/2 C. @
White, No. 1 "	4%C. @
No. 2	23/4C. @
Seconds "	2 C. @
Mixed. Woolen	2 C. @ 3 C.
Soft, do "	5%c. @ 6 c.
Gunny bagging "	3 C, @
Jute butts "	23/4C. @
Kentucky bagging "	3 C. @
Book Stock "	21/6C. @
Newspaper Stock "	2 C. @ 2%C.
Waste Paper and Scraps	11/2 C. @
Kentucky Bale Rope "	4 C. @
Oakum Junk, No. 1	
Vakum Junk, Mo. 1	4%c. @ 5 c.
AU. 2	3 C. @
Tarred Shaking	1 C. @ 1%C.
Grass Rope "	@ 3¼C.

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St., Philadelphia, March 26, 1878.

We still have to report business in a dull and unsatisfactory condition, and nothing in view upon which to base predictions, favor-able or otherwise. Values seem to be pretty well established, and it is believed that there will be no more shrinkage, but for some reason or other trade drags along slowly, and a very despondent tone prevails throughout all branches of business. Some large transactions in Iron are reported, but without imparting strength to the market.

a wider and more extended field of opera-tion than was possible while closely confined to the office. Capt. Bailey is now connected as follows: President of the Jersey City Car Wheel Manufacturing Company; purchasing and sales agent for A. & P. Roberts & Co., and agent for Atkins Bros., of Potts-ville, for the sale of bridge materials, &c.

Pig Iron.-The market during the week has shown no essential change, and business s still dull, heavy and depressed. The con-dition of producers is becoming more onerdition of producers is becoming more oner-ous, and without any immediate prospect of relief. The advance in coal since the first of the year has been equal to 70¢ per ton in-crease in the cost of production, while there has been no improvement whatever in the price of Iron. It is understood that there will be another advance in coal on the 1st of April, but from present indications there will be no corresponding advance in the price of Iron. Concessions of course are equally out of the question, but sellers appear to be willing to enter orders freely at current rates. Buvers are making offers or summer deliveries at about 50¢ reduction. A very large percentage of the furnion, but we cannot learn that any orders of hat character have been accepted. A fair amount of business has been done in small country, are out of blast, and unless there is a place of the summer of th

possible to continue business at the present unremunerative prices. We quote: No. 1 Foundry, \$18.50 @ \$19; No. 2 do., \$17 @ \$17.50; Gray Forge, \$16.50 @ \$18; Mottled, \$15.50 @ \$16. Sales during the week make a total of nearly 20,000 tons

Blooms.-The market is dull and nomi-Blooms.—The market is dull and nominal. We quote as follows: Sunken Scrap Blooms (2464 lb), \$42 @ \$45; Northern Ore Blooms (2240 lb), \$37 @ \$39; best quality Charcoal Billets (2240 lb) for wire and steel purposes, \$50 @ \$55; Bars, do., \$65 @ \$67.50; Sheet Iron Blooms, cornered (2464 lb), \$60 @ \$62.50; Cold-blast Charcoal Plate Blooms, \$55 @ \$57.50; run-out Anthracte, \$50 @ \$52.50.

Muck Bar.—The market continues in much the same condition as last week, and sales are in small lots. We quote: Soapstone, \$30; Boiled on Ore, \$33; extra quality for Hoops and Rods, \$35—all Philadelphia

Plate and Tank Iron.—There has been a little more activity during the past week, chiefly for lots of from 10 to 30 tons each, giving somewhat more life to business for the time being. There are no inquiries for large lots, however, and there is nothing in the immediate outlook of a very encouraging nature. Prices are nominally unchanged, but there is a weak feeling, and buyers of large lots would no doubt obtain concessions. We quote: Common Plates, 2.3¢ @ 2.4¢; Tank Iron, 2.3¢ @ 2.5¢; C. No. 1, 2.4¢ @ 2.6¢; Shell Iron, 2.75¢ @ 2.9¢; Flange Iron, 3.75¢ @ 4¢; Solid Fire Box, 4.85¢ @ 5¢, and Best Bloom, 5.5¢ @ 6¢.

Sheet Iron.—The market continues in the same dull and inanimate condition as noted in our late reports. One of the mills in this vicinity has been temporarily closed two weeks for repairs, and another closed on Saturday for a e same purpose. It is quite likely that they may remain closed for some time unless business improves. Manufacturers are carrying pretty heavy stocks, and are not disposed to increase them to any great extent unless there is some better prospects of a demand than can be seen at prospects of a demand than can be seen at present. Prices are very weak, and large concessions would be made to buyers of good sized lots. We quote jobbing lots: Refined Sheet Iron, No. 26 to 28, 3.6¢@3.7¢; No. 22 to 24, 3.4¢@3.5¢; No. 16 to 21, 3.2¢; Best Bloom Sheets, No. 26 to 28, 5.4¢@5.5¢; No. 22 to 24, 5.2¢; No. 16 to 21, 4.9¢@5.5¢; No. 22 to 24, 5.2¢; No. 16 to 21, 4.9¢@5.5¢; Refined Plates or Blue Annealed, 5-16 to 18, 2.6¢@2.5¢; Refined Plates or Blue Annealed, 5-16 to 18, 3.2¢@3.3¢; Best Bloom, 5-16 to 18, 4.9¢@5¢; Philadelphia Russia, 7¢@7.5¢; A. Patent Planished, 10½¢; B. Patent Planished, 9½¢; Bloom Galvanized, 40%; Refined Galvanized, 50%.

PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, Pritisburgh, March 26, 1878.

The most remarkable event of the past The most remarkable event of the past week was the very decided change in the weather. Sunday night was, with one or two exceptions, as cold a night as we had during the winter, and the peach crop in this section of the country will be very light as the buds were badly frozen. General business is backward, but it is improving, nevertheless, and the outlook in some respects is more encouraging. Manufacturers very theless, and the outlook in some respects is more encouraging. Manufacturers very generally report that orders have commenced to come forward more freely. The shipments, especially by river, have been quite heavy within the past few days, and but for the very small margins for profit, there would not be so much room for complaint plaint.

The manufacturing interests of Pittsburgh are suffering from various causes, chief among which are railroad discrimination and excessive city taxation. Taxes have become so oppressive that manufacturers are very much discouraged. There is no inducement on their part to expand and any new companies requiring new works will no doubt make it a point to get outside of the city limits to escape city taxes. Moreover, what is still worse, there is no prospect of any immediate reduction, as a heavy debt has been contracted, and it will require years to meet principal and interest. require years to meet principal and interest. Then, as already intimated, railroad dis-crimination has been a very serious drawout imparting strength to the man.

As a matter of interest to the Iron trade, we have pleasure in announcing that Capt.

J. F. Bailey, who for the past 11 years has been connected with A. & P. Roberts & Co., of the Pencoyd Iron Works, has moved into the office lately occupied by the Pennsylvania Steel Company, 216 South Fourth street, resigning his position as ment of the railroads is decidedly hostile.

However, notwithstanding the great disaduate out of the railroads is decidedly hostile. vantages with which she has had to contend, Pittsburgh is not dead by any means, and she will continue to be the leading manufacturing city of the country, or, as she is appropriately termed, the "Birmingham of propriately termed, the

Pig Iron.-There has been but little change in the situation during the past week business continues dull, and to the produc ing interest the market is in a more unsatisfactory condition now than it has been at any time since the panic. Prices continue weak, and they are lower now than they have been yet, having declined from \$1.50 to \$2 per ton since the 1st of the present year, with little or no reduction in the cost of production. While it is scarcely possible for prices to go any lower, in view of the past, there is no confidence in the future, and buyers continue to buy only as their immediate wants require. If there were any animation in the market in its present con dition, however, a reaction would soon set

able at \$17 @ \$17.50, 4 mos., for Gray Forge, and Bituminous Coal Smelted at \$18 @ \$18.50, 4 mos., for White and Mottled Redshort, and \$19 @ \$19.50, 4 mos., for open Gray Red-short, the latter an outside figure. Anthracite Foundry Iron is selling at \$20 @ \$20.50, 4 mos., for No. 2, and \$21 @ \$21.50 for No. 1. Hanging Rock Charooal continues quiet and unchanged. Sale of 200 tons Eastern Cold-blast at \$27, cash.

Manufactured Iron.—There is an increasing demand, and while the trade is backward and but few, if any, of the mills are pressed with orders, notwithstanding they are only working single turn, the out-look, so far as business is concerned, is bet-ter, but the prospect for an early improve-ment in prices is not very encouraging. While it is alleged at some points that the agreement in regard to the limitation of pro-duction is not being beneatly adhered to no duction is not being honestly adhered to, no such changes are made hereabouts, and it strikes your correspondent that the best thing to be done under existing circum-stances is to continue the arrangement 30 or even 60 days beyond the time agreed or even so days beyond the time agreed upon. With an increased consumption and no increase in the production there would be some chance to obtain better prices, but with an increased production, thereby causitant and the production of the product ing an accumulation of stock, prices would be much more likely to decline than advance. Merchant Bars still quotable at 1.70¢ @ 1.80¢. merchant bars still quotable at 1.70¢ (\$\text{m}\$.00¢, \$\text{fo}\$ days, for good stock; Sheet may be quoted upon a basis of 2.75¢, rates; Tank, 2½¢ (\$\text{2}\text{d}\$) \$\text{b}\$. Oil Barrel Hoop Iron is now quoted at 2.70¢ with, so it is said, no discrimination in favor of large buyers.

Steel .- The market continues active. Mills here have about all they can do. Some of our manufacturers report that they have of our manufacturers report that they have more to do now than ever before, and that, although working up to their full capacity, they are unable to keep up with their orders. The consumption of Steel Boiler Plate has increased largely within the past year or two. Nearly all Western steamers are now using Steel instead of Iron boilers, being much more durable, with but little difference in cost. Tool Steel is still quoted at 11¢ @ 13¢; Machinerv do., 5¢ @ 7¢; Spring do., 6¢ @ 7¢; Plow do., 5¢ @ 8¢; Tire do., 4¢ @ 5¢; Boiler Plate, 7¢ @ 8¢.

Nails.—The trade continues to improve as

Nails,-The trade continues to improve as Nalls.—Ine trade continue of the season becomes more advanced, and the indications continue favorable for a good spring and summer business. The shipspring and summer business. The ship-ments, particularly by river, not only from here, but Steubenville, Wheeling and Ironton here, but Steubenville, Wheeling and Ironton have been quite heavy during the past week or two, manufacturers, as well as jobbers, being anxious to take advantage of the very cheap river freights. Nails were shipped from Wheeling to St. Louis last week at 9¢ \$\forall \text{ keg}\$ while the rate from here was from 9¢ to 10¢ \$\forall \text{ keg}\$, keg, a very low rate for the distance, 1200 miles. No change in prices; \$2.50, 60 days, for less than 200 kegs, and \$2.40, 60 days, for 200 kegs and upward. A special meeting of the Western Association will take place here to-morrow, to take action in regard to production, as the arrangement entered into last December expires the ment entered into last December expires the 1st of April. The action of the meeting, whatever it may be, will be sent to The Iron

Horse and Mule Shoes .- There is rather more doing, but no change in prices; 100 keg lots, \$3.80 @ \$4.80, cash.

Wrought Iron Pipe.-No improvement in the demand, but it is probable there will be within a week or two, or as soon as the weather becomes suitable for out-door work. Owing to the continued depression in the oil business, the inquiry for oil-well casing and tubing continues light. Discounts still quoted at 55 @ 60 %.

at 55 @ 00 %.

Scrap.—We can report a small sale of old Iron Rails at \$20.50, cash, delivered here, with negotiations pending for more at same figure. Old Car Wheels, \$19 @ \$20; No. 1 Railroad Wrought Scrap, \$21 @ \$22; Boiler Scrap, \$24 @ \$25; Blacksmith do., \$20 @ \$21; Wrought Turnings, \$16 @ \$17; Cast Turnings, \$11 @ \$12; Car Springs, \$38 @ \$39; Car Axles, \$28 @ \$29.

Windaw (llass,—There is more doing.

Window Glass,-There is more doing, the shipments, especially by river, having been quite large within the last week or two, but prices continue weak, and to manufactur-ers are unsatisfactory, having been forced down to meet with competition from other points. Discounts may be quoted by the car load at 70 and 10 and 10, and, in extreme cases, 5 on top of these again. It appears to be the determination of the trade to give those who are responsible for the very low rates the benefit of the same, as y have been they have been like the dog in the manger, doing no good for themselves and prevent-ing others from doing any. In a jobbing way, quotations may be made at 70 to 70

Coke.-The market for this important staple continues in a very dull and unsatisfactory condition, with but little prospect of any immediate improvement. Owing to so many Pig-Iron furnaces being out of blast, the consumption is meager, and with an oversupply and active competition, prices have been reduced to such an extent as to barely cover actual cost, if that. May be quoted at \$2.15 @ \$2.25 per ton, delivered free on cars in Pittsburgh.

Coal.—The coal trade continues dull, and next month there will be a suspension of mining in the Monongahela valley, the ob-ject being to prevent an accumulation of stock, as the down river markets are all overstocked, and owing to the open weather the consumption has been light all winter.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., (CHATTANOGA, March 26, 1878.

General business has been very dull during the week. Peace prospects in the East depress the grain market, and induce farm-ers and other holders to be slow to sell. The planting is done. The weather continues delightfully warm. Early fruits are formed, the valleys and hills are rapidly being covered with green foliage; much of the corn land in the Tennessee Valley and its tributaries has already been planted. A noticeable and important feature of the week's business in manufacturing circles is the reduction of coal to manufacturing circles is the reduction of coal to manufacturers so on the duction of coal to manufacturers 50¢ on the

Pig Iron.—Trade has only been fair. Pig Iron.—Trade has only been fair. Prices are fairly maintained. We quote: Coke Irons—No. I Foundry, \$20 @ \$21; do., \$18 @ \$19; No. 2, \$16 @ \$17; Gray Forge, \$13 @ \$14; White and Mottled, \$11 @ \$12. Hot Blast Charcoal—No. I Foundry, extra, \$20 @ \$21; do., \$19 @ \$20; No. 2 Foundry, \$17 @ \$18; Gray Forge, \$16 @ \$17; White and Mottled, \$15. Cold Blast Charcoal—Car Wheel Metal, \$22.50 @ \$27.50: do.. Extra Standard. \$22.50 @ \$27.50; do., Extra Standard, \$24.50 @ \$29.50; Forge, \$17.50 @ \$20.

Muck Bar—Is quotable at \$27 @ \$31 : Old Rails, \$17 @ \$18.50 ; Old Car Wheels, \$18,50

Ores.—Brown Hematite, 50 to 56 %,; \$\vec{\psi}\$ ton, \$1.75 @ \$2.25. Red Fossiliferous, 50 to 56 %; \$\vec{\psi}\$ ton, \$1.70 @ \$1.90. The above prices for Ores delivered in Chattanooga on cars or on the wharf from flat boats.

Nails.-The demand for Nails has slackened up somewhat, but is still sufficient to em-ploy all the capacity of the mills, which are considerably behind their orders. We quote them at \$2.50, with usual discounts on large

Manufactured Iron.—The demand for Merchant Bars is lighter, but the mills are all on full time, and will have to keep up that kind of work for some time to get near even with orders now in hand. Bar we even with orders now in hand. Bar we quote at \$2. The demand for Bolts and Spikes continues good. We quote: Railroad Spikes, \$2.50; Light Rail, \$2.25; Track Bolts, \$3; Trestle Bolts, \$4.

Iron Rails,—Little doing, which little won't last long. The last iron Railroad Bar will soon be rolled in this district. We quote them at \$34 @ \$36 per ton.

Coke.—The supply is plenty, and prices the same, \$2.50 per ton, on cars in Chatta-

Coal.—We note above an important event in the coal market. The significance of this fall is in the prospect that an advance can never be established. We quote run of mine at \$2 ? ton to manufacturers, on cars in Chattane

CLEVELAND.

CLEVELAND, March 26, 1878. Iron Ore .- There have been no sales of Lake Superior Ores of any quantity during the past week. A considerable number of the furnaces, however, have been making inquiries for ores suitable for the manufacture of Bessemer Pig metal. This carries the conviction that the furnaces are more inclined toward making Bessemer than any other kind of Pig Iron, as that is the only kind promising ready sale. No ore has been started from the upper lakes, although shipping will be on the move pretty generally after the 1st of April, unless the stormy season prevailing at this writing over the lake region should continue unabated. The outlook for all kinds of ore is very discouraging.

Pig Iron,-Sales of Pig metal have not been made with great frequency or in large quantities during the past few days. There is a steady demand, however, but prices are not firm. Sellers are still in excess of the buyers, and the surplus stock is large.

Bar Iron and Nails.—There is a very active demand for all kinds of manufactured Iron and Steel. The manufacturers are all complaining, however, of sharp competition and low prices. Greater attention than heretofore is being given to the quality of for low prices.

for low prices.

Scrap Iron.—There is a general activity in Old Rails, although few actual transactions are reported. The low prices which buyers have been looking for have not come to pass, and holders are firm in spite of large stocks in hand. Old Wheels are in better dependent of the price. Steel Scrap of the prices of demand and firmer in price. Steel Scrap of all kinds is in excess of the demand.

BOSTON.

only a Prices on the whole tend downward, partly on account of the lower freights incident to the reopening of navigation. We dent to the reopening of navigation. We quote: \$20.50 @ \$21 for No. 1; \$19 @ \$19.50 for No. 2, and \$18.50 @ \$19.25 for Gray Forge. Scotch Pig is dull, with a very light demand. Bar continues unchanged, quoting \$43 @ \$45 for Refined and \$35 @ \$36 for Common. American Rails, \$32 @ \$37. Steel Rails, \$43 @ \$44, from will Nails are in light demand at me. and \$35 @ \$36 for Common. American Rails, \$32 @ \$37. Steel Rails, \$43 @ \$44, from mill. Nails are in light demand at unchanged prices. Sheet is selling at 3¢ @ 3½¢ \$\frac{3}{2}\$ B. Russia is quiet at 10¾¢ @11¢. We quote English Spring Steel at 7¢ @ 8¢, gold; 9¢ @ 11¢ for German; 9¢ @ 11¢ for Machinery; 14¢ @ 15¢ for Cast; 10¢ @ 12¢ for Blister; 8¢ for American Spring; 13¾¢ @ 14¢ for Cast; 9¢ for Blister; and 8¢ for Machinery. Copper is a trifle easier, quoting 17¢ @ 17½¢, with sales of some 200,000 B at the price. There is nothing doing in futures. For manufactures we quote: New Sheathing, 28¢; Bolts and Brafutures. For manufactures we quote: New Sheathing, 28¢; Bolts and Braziers, 30¢; Yellow Metal Bolts, 25½ @ 25½¢; ditto Sheathing, 20¢. Lead fails to respond much in price to the combination talk. Buyers purchase only to supply their immediate wants. We quote: Pic. 27½ @ country, are out of blast, and unless there is a send we are also aware of heavy orders haven do not ing been placed upon terms held strictly everything, and the descending attitude of the pig Iron will be checked up some of them arket for lots of 1000 to 2000 tons each, and two lots of upward of 5000 tons each for a different class of trade were also placed three or four days ago. The feeling throughout the trade, however, is exceedingly gloomy, and it is likely that production will have to be curtailed, as it is imimmediate wants. We quote: Pig, 3%¢ @ 4¢, currency; Sheet, 6½¢; Pipe, 6¢; Tin-Lined Pipe, 15¢; Bar Lead, 5½¢; all of

March 21: Our market is still quiet, consumers buying very little beyond actual wants. The outlook is not very cheering, still we anticipate St. Louis will do her share of the Iron trade for the year 1878.

	No. 1.	No. 2.	Mill.	White and M't'ld	
M'souri Stone Coal Missouri Charcoal		\$ - 0 co	8.0		
Tenn. Charcoal				17.00	
South. Coke, soft		20.30	10.30	Mot- tled.	White
and strong Hang, Rock Char-	23.00	31.00	19.00	18.00	\$18.00
Hang. Rock Char-	25.00	24.00	23.00	******	
coal, Cold-short.	23.00		*****		
Hang, Rook Coke,	Extra No. 1 I. M. Ore.	No. 1 I. M. Ore.	Extra A No. 1 Na- tive.	No. 1. Na- tive.	Alice, Am. Scotch
equal to Scotch.	25,00	24.00	24.50	23.50	23.00
	Extra No. 1.	No. z.	B No. 1.	No. 2.	
West Va. Coke	23.50	23.00	22,00	21.50	

COLD-BLAST CHARC	OAL-A	Il Nu	mbers.
Hanging Rock	4	mes.	\$25,00 @ 38.0
l'ennessee	4	mos.	26,00 @ 30.0
Kentucky	4	mos.	26.00 @ 30.0
Missouri	4	mos.	26,00 @ 30,0
Jeorgia	4	mos.	26,00 @ 30.0
Alabama	4	mos.	26.00 @ 30.0
Assorted Bar Iron			3.00 @ 3.1
No. z Railroad		W roo	.90 @ 1.0
Heavy Cast Scrap		66	.65 @
light " "		6.6	.55 @
Old Rails		mos	20.00 @ 20.5
Old Car Wheels	4	mos.	16.00 @ 17.0

CHICAGO.

L. R. HULL & Co., 95 Washington street, under date of March 25, report as follows: We have no improvement to report. Demand has not materially increased, but prices remain firm. Quotations unchanged:

Pricos remain		Anomenons	unchanged .
L	AKE SUPE	BIOR CHARCOA	L
Lake Superior	No. 3		\$23.00 @ 24.00 . 22.00 @ 23.00 . 22.00 @ 23.00 . 22.00 @ 23.00
		AN SCOTCH.	
Mahoning Vall	ey. No. z		. 22.50 @
Shawnee, No.	I	• • • • • • • • • • • • • • • • • • • •	22.00 @
Jackson Count	y, Ohio,	No. 1	. 22.00 @
Silvery Gray		NO. 2	. 20.00 @

BALTIMORE.

Mr. W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, report us the following prices, under date of March 25, 1878: Trade has ruled inactive and quiet for the past week, without any new feature to note. Values, however, are firm and unaltered at annexed figures:

	AMERICAN REFINED BAR IRONS.
	I to 6 wide by 34 to I thick B D 1.95 @ 2 #
	Round and Square, ordinary sizes from ½ to 2 inclusive
	Hoop iron, 11/2 wide and upward. " 3 @ 31/6
	Band Iron, from 11/4 to 4 in. wide " 21/4 @ 3 6
•	Horse-shoe from 1/4 to 1 wide by 1/8
	to 5% thick " 31/4 @ 31/4 @
	to 5/4 thick
	Black Diamond Cast Steel, Flats,
١	Squares and Oetagon, ordinary
	sixes " 141/2 @ 15 #
	Machinery Steel " 8 @ 0 ¢
ч	Machinery Steel " 8 @ 9 ¢ Cast Spring Steel " 7½ @ 8 ¢ Homogeneous Steel Plate " 8½ @ 9 ¢
1	Homogeneous Steel Plate " 81/4 @ 9 e
1	rerkins Horse shoes, w keg of too lbs\$4.0256
1	" Mule shoes 5.0256
1	R. R. Spikes
H	Common Horse Nails B D 14# @ 18 ¢
1	10 0 8 7 6
1	Putnam Horse Nails # fb 18 10 20 21 23
1	Globe Horse Nails 10 10 10 20 91 23#
-1	Legglist discount to the trade

Messrs. R. C. HOFFMAN & Co., Iron and

	Baltimore Charcoal Pig\$29.00 @ 30.00
	Virginia " 28.00 @ 30.00
	Anthracite No. 1 19.00 @ 20.00
	14 No. 2 18.00 @ 20.00
	" No. 3 17.00 @ 18.00
Į.	" Mottled and White 14.00 @ 15.00
١	Charcoal, C. B. Blooms 50,00 @ 55,00
	" Billets \$5.00 @ 60.00
	Refined Blooms 45.00 @ 50.00
,	-

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, Richmond, Va., writes as fol-MARCH 23.—Pig continues depressed, with report no change this week in Iron. appear satisfactory to purchasers. appear satisfactory to purchasers, but they will not invest beyond their immediate wants. Such treatment, if the supply is We adapted, must eventuate in a healthy mar-\$19 ket. No change in quotations:

Va. C	old-blast Cl	barcoa	I, Col	d-sho	rt	\$20.00 Ø	24.0
Va.	84	44	Nei	itral.		28,00 @	20.0
Va. W	arm-blast	46	Col	ld-she	ort	10.00 @	22.0
Anthr	acite, Ame	rican 8	Soote	h		23.00 @	24.0
14	No.					20.00 @	
64						19.00 @	200
41	No.					18.00 @	20.0
64	Mott	ed					
0-1	(Wort Win	reimin) I				16.00 @	
Coke,	(West Vir	gimia) :	NO. I			21.00 @	***
	41	N	0. 2			20,00 @	
Old R	ails					17.00 @	18.0
Wrou	ght Scrap	No. 1				20,00 @	
Cast	46	machin	nerri			18.00 @	
	and Dadne	A Dan	took y			10.00 (0)	
RICHI	ond Refine	d Dar	tron.			3.00 @	2 1-1
Horse	Shoes per	keg				4.50 @	4.7
Mule	66 01					@	
	ominion Na	ails, Sta	andar	rd Sia	ie, \$9		2.1
keg						2.60 @	

Freight to New York and Philadelphia by sail, 1.50 per ton of 2240 B.

LOUISVILLE.

Messrs. GEO. H. HULL & Co., under date of March 25, write us as follows: There is a fair demand for all grades of Iron. Prices have not changed materially, though most of the lots forced on the market recently at low prices have been disposed of and the same grades are held at higher figures. We revise quotations as below. The usual time, 4 mos., allowed on quotations below:

FOUNDRY IRONS.	
No. 1 Hanging Rock, Charcoal	21.50 @ 22.50
No. 2	19.00 (6 20.00
No. 1 Southern, Charcoal	19.00 @ 20.00
No. 2 " " "	18.00 @ 19.00
No. 1 Hanging Rock, Stonecoal and	
Coke	10.00 @ 20.00
No. 2 Hanging Rock, Stonecoal and	-
Coke	18.00 @ 19.00

No. 1 Southern, Stonecoal and Coke., No. 2 "American Scotch" Silver Gray	19.00 M 18.00 M 19.00 M	19.00
MILL IRONS.		- 1
No. 1 Charcoal, Cold-short and Neut'l.		17.50
and Neutral	17.00 @	17.50
and Neutral	16.50 @	
No. 1 Missouri and Indiana Red-short. White and Mottled, Cold-short and	20.00 @	21.00
Neutral	14.00 @	16.00
CAR WHEEL AND MALLEABLE IN	ONS.	J
Hanging Rock, Cold-blast	25.00 @	32.00
		- 1

Messrs. W. B. BELKNAP & Co., Iron and Steel Merchants, Louisville, Ky., under date of March 25, report trade fair and steady, but with no signs of the spring swell which was expected to follow the improvement in the weather and roads. Under the present system of short credits and small stocks the seasons no longer count for much in deter-mining the volume of trade. We may con-gratulate ourselves that the current is steady, and dispense with the agreeable excitement of tidal waves. Prices are unchanged for Merchant Iron and Heavy Hardware, but still favor the buyer except in the matter of time credits, in which the tendency is toward further contraction.

CINCINNATY.

Messrs. L. R. Hull & Co., under date of March 23, write us as follows: While prices are no firmer, the demand is good and well sustained, and considerable Iron is constantly changing hands. We continue to

HOT-BLAST FOUNDRY.
Hanging Rock, No 1, Charcoal\$22.50 @ 23.00 No. 2,
NO. 2, " 20.50 @ 21.00
" No. 1 Coke 20,00 @ 22.00
" No. 2 " 10.00 @ 20.00
" No. 1, Stonecoal 19,00 @ 20,00
Virginia, No. 1 Coke 20.00 @ 21.00
No. 2 10 110,00 @ 10,50
Ala, and Tenn., No. 1 Charcoal 20,50 @ 21,00
16 No. 2 16 19.00 @ 19.50
Shawnee, No. 1 Stonecoal 19.50 @ 20.00
Shawnee, No. 1 Stonecoal
FORGE IRONS,
Hanging Rock No. 1 Charcoal 20.00 @
Hanging Rock No 1 Coke 18.50 @ 19.00
Virginia, No. 1 18.50 @ 19.00
Ala, and Tenn, No. 1 Charcoal 18.50 @ 19.co
Red-short, No. 1 Coke 19.50 @ 20.50
Cold-short, No. 1 Stonecoal 17.00 @
Old Rails, primecash, 20,00 @
CAR WHEEL AND MALLEABLE.
Hanging Rock 33.50 @ 35.00
Southern and Western Brands 28.00 @ 30 00
OHE.
Virginia Hematite (Washed)cash, 4.25 @

FOREIGN.

FRANCE.

FRANCE.

(Moniteur des Interets Materiels.)

Paris, March 10, 1878.—Metala.—There is a greatly improved feeling in commercial circles since it is known that peace between Russia and Turkey has been concluded, and we can perceive no obstacle now why business should not improve, for we are disbelievers in further complications. Copper has been a little firmer. We quote Chill Bars, deliverable at Havre, 175 francs the 100 kilos; Common ditto, 167; Ingots, 175; English Tough Cake, 178,75; ditto Best Selected, 182,50; and pure Corocoro Ore, 176,50. Havre has been steady; they quote first brands Chill Bars, 172,50 and pure Corocoro Ore, 176,50. Havre has been steady; they quote first brands Chill Bars, 172,50 and 192,500 current ditto, 171,55; and Lota and Urmenets, 168,75 @ 170. Marseilles is supported. They quote Spanish, in slabs, 167,50; Red Tokat, 170; Small Refined Ingots, 180; Bolts, 210; Sheathing, 202,50; and Yellow Metal ditto, 200. Tim has remained ill sustained. We quote Banca, deliverable at Havre or Paris, 182,50; Billiton, 173,50; Straits, 173,50; Australian, 173,50; and English, deliverable at Havre or Rouer, 173,50; and English, deliverable at Havre or Rouer, 183,50; and Belgian and German here, 46 francs the 100 kilos, Marseilles is quiet at 42,50 @ 15, English, 45,50; and Belgian and German here, 46 francs the 100 kilos. Marseilles is quiet at 42,50 @ 13, first and second fusion. Spelter is moderately active at tolerably firm prices. We quote Silesian, deliverable at Havre, 48,75 francs the 100 kilos, 100 Spelter is moderately active at tolerably firm prices. We quote Silesian and second fusion. Spelter is moderately active at tolerably firm prices. We quote Silesian, deliverable at Havre, 48,75 francs the 100 kilos, 100 Spelter is moderately active at tolerably firm prices. We quote Silesian deliverable at Havre, 48,75 francs the 100 kilos, 100 Spelter is moderately active at tolerably firm prices. We conceive the second for the 100 kilos, 100 Spelter is moderately active at tolerably firm prices.

BELGIUM.

BELGIUN.

(Revue Universelle).

BRUSSELS, March 10, 1878.—Iron.—This week has been a more animated one, inasmuch as the Steel works of Belgium have received a good many orders for Raiis of various descriptions, and there has besides been a demand for special fron. Pig Iron has also done well. There was a trial here last week with a new dummy locomotive built for our tramways by Messrs. Carels Brothers, of Ghent. The Northern line, of Paris, has ordered 20 of them. For the past 12 months these dummies have been in operation on the horse railroads of Geneva and Milan-Saromo. Steam on tramways evidently has a great future. Now that spring is at hand the demand for architectural Iron begins to revive in our country, and beams and other articles in that line are in request. The views of purchasers as regards prices are extremely low; the fact is that they have been spoiled during the past year or two, and seem to find it quite natural that our makers should work merely for the humanitarian purpose of keeping their operatives from starving. Messrs. Bolckow, Vaughan & Co. of Middlesbro', have beaten the Belgian rail makers in cheapness in furnishing 900 tons Steel Rails to the Roman railroads, selling them at 162.50 francs, against 178.50 & 183 the Belgian range of teaders. The Haine-St. Pierre forges have made the lowest tender for the furnishing of the various bridges for the Sambre River, the Charlero canal, &c., on the basis of 30¢ the kilo, for Iron of all sorts. From the Grand Duchy of Luxembourg, acvices are also much better; various blast furnaces are being blown in, and large amounts of Ironstone are being shipped to this country, France and Germany.

(Borsenhalle).

HAMBURG, March 9, 1878.—Metais.—Peace being secured in the East, there is every reason to expeci a general revival in business in Europe, especially in the metal branch, which has been more affected by the stagnation of the past few years than any than any United States.

other, and in which we have at least the conviction that botton has been touched so far as values are concerned. Copper.—The German markets are still very quiet, but prices remain steady at the following quotations: Berlin, good quality English and Australian, 72 @ 77 marks per 50 kilos., and Refined Mansfield, 77 @ 77,50. Hamburg, Drontheim, 78 @ 70; English ingots, 74 @ 75; ditto Sheathing, 87 @ 82, and Yellow Metal ditto, 67 @ 68. Stettin, Swedish, English and American, 78.75. The remains weak. Berlin quotes Banca, 73.75 @ 74; English, 72 @ 72.50. Here, we are with the former 74 @ 75, and with the latter, Refined, 74 @ 75, and Common, 76 @ 77. Lead.—Very little transpires and prices have not yet regained their stability. Berlin quotes Tarnowitz, Hartz and Saxenian, 18.80 @ 19.30 marks the 50 kilos. The quotations here are as follows: English Pig, 21 @ 21.50; Sheet, 21.50 @ 22; German Pig, 20 @ 20.50; Shanish 22.50 @ 23 marks the 50 kilos; English and Dutch White Lead, 23 @ 33.50. Spelter.—Has become steadier in Germany, but there is apparently no prospect for an immediate advance; as we approach summer the price may improve. Berlin quotes Silesian, 10 @ 10,50 marks the 50 kilos. Breslau quotes Common to arrive, 17.60; W. H., 17.70; and Godulla, 17.70 @ 17.00. We quote here Silesian to arrive, 20 marks; Silesian Sheet Zinc, 24.50 @ 21; Veille Montagne, 25 @ 25.70; Sheathing for vessels, 26.30, and Zinc White, 26 @ 28.

(Koch & Vlierboom.

(Koch & Vlierboom.)

ROTTERDAM, March 12, 1378.—Tin.—The Netherland Trading Society will sell at auction on the 29th inst. 15,000 slabs Banca Tin, to which the society reserves the option of adding 6000 slabs if they arrive in time by the steamer now about due. Since our last report Banca has sold at 41 @ 41% guilders on the spot, and at 41 deliverable from the coming sale, while Billiton affoat per steamer has brought 29, and landing at 28¼, all per 50 kilos. Lead is dull. We quote: Holberg, 10¾, and "San Andres" Spanish, 10¼ guilders the 50 kilos.

EAST INDIES.

EAST INDIES.

(Schmidt, Kustermann & Co.)

PENANG, Jan. 26, 1878.—Tin—There is a good supply, but purchases for India and China keep prices above the European and American parity, and no further parcels have been taken for the United States. Chinese buyers have taken, mostly for India, some 4600 piculs at \$18 @ \$18.05; a good deal has besides been shipped to Singapore, and the stock in bazaar has been reduced to between 6000 and 7000 piculs.

(J. Peet & Co.) BATAVIA. Java, Feb. 1, 1878.—Tin.—The next auction will take place on the 11th inst., and will comprise about 10,000 piculs. The last average price at auction was 43.70 guilders per picul.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.) SHEFFIELD, Eng., March 11, 1878.

THE WEEK which has just come to an end has been in

which has just come to an end has been in most respects exceedingly like unto sundry of its predecessors, and will probably have foreshadowed a succession of similarly slow and sluggish seven-day periods. To say we have no excitement would not, indeed, be within the strict bounds of truth, and we should but deceive ourselves were we to should but deceive ourselves were we to dream that we had passed into the realms of the Lethean waters, for have we not the pleasurable thrills of hope, and do we not now anticipate that the "end of the war" (vide English press, passim) will enable us to speed the plow, drive the mills, and, generally speaking, start the nimble ninepence on an active excursion? an active excursion?

THE POLITICAL POSITION,

it is true, seems more reassuring than for many months past, yet there are those among us who aver that the real danger lies among us who aver that the real danger has not so much in the settlement proper between Russia and Turkey but in the secret springs and wires which are being so freely used in "compiling" the conference. Not a few people are under the impression that the sittings at Berlin under the presidency of Prince Rismarch were preserved long. of Prince Bismarck were prearranged long ago, and not on such conditions as may be favorable to Great Britain. Whether that is so or not I will not presume to suppose, but I take it that we may regard it as being a singularly suggestive corollary that, while a Peace Congress is being got together, all the great European powers are hasily getting their ordnance and small arms ready, their powder dry, and their fleets in fighting order. At this moment Europe is armed cap-a-pie—armed in such a manner that by some infernal trick of statecraft the whole may be set ablaze in a few days.

TRADE GENERALLY

may be briefly summarized as being dull, yet with a very fair amount of business doing in several branches, and a large turnover in the Bessemer departments. In no case is the profit more than a minimum, and in some instances there is abundant reason for estimating it at nil.

OUR FEBRUARY EXPORTS.

as set forth in detail by the Board of Trade returns just issued, were on a rather better scale, their total value having reached £14,-896,320, as against £14,393,945 in the same month of last year. The aggregate worth of the iron and steel exported was £1,351,-862 as compared with £1,272,906 in February 1877, the tonnage in this respect being 153,741 this, and 138,132 last February; of small firearms we sent off 22,266 as against 12,573; of coal, 997,144 tons as compared with 899,-013; of unwrought copper, 42,789 cwt. as against 15,458; of wrought copper, 17,158 against 12,539 cwts.; of lead, 3050 tons as compared with 3056; of plate and plated wares, £13,344 against £10,995; of telegraph wires, &c., £91,458 as compared with £34,-878; of unwrought tin, 8688 cwts. against 7175 cwts.; of sheathing, 28,784 cwts. against 23,774 cwts., and of zinc or spelter, 9940 cwts., this as against 10,721 cwts. last February. Some of the leading details are as under: of coal, 997,144 tons as compared with 899. as under

CROS CRARGES A			
	Pig	Iron.	
To		Feb., 1877.	Feb., 1878.
Germany		6,943	7,654
Holland			21,516
Belgium		11,231	6,194
France			7,443
United States			1,953
British N. Amer.			60
Other countries.		7,253	11,931
Total		Tons. 50,278	46,751
Bars,	Angle i	s, Bolt and Ro	cl.
Russia		47	27
Germany		24X	403
Holland		524	235
France		14	6a
Italy		I,752	1,015
Turkey		342	1,132

	HE IRON	A	GE	-
,	British N. America	1,446	687	1
9	" India	6,363	3,612	ì
	Other countries	6,903	5,814	l
i	TotalTons.	19,314	15,812	l
,	Old, for Remanufa United States	cture.	191	l
	United StatesOther countries	818	1,403	l
-	TotalTons.	918	1,594	ı
1	Railroad, all So		497	١
,	Sweden and Norway	208	1,395	l
8	Denmark Germany Holland	226 176	7,308	l
3	Belgium		20	Ì
t	Spain and Canaries	1,320	34 3,196 5,011	
	France. Spain and Canaries. Italy. Turkey.	905		
	United States	67	1,862	ı
2	Egypt United States Brazil Peru Chili	1,332	2,028	l
,	British North America		120	ŀ
	British India. Australia. Other countries.	5.242	14.729 5.970	l
		THE RESERVE AND ADDRESS.	3,801	١
	TotalTons. Iron or steel wire		3,859	l
7	Hoops, Sheets and F		31039	l
	Russia. Germany.,	669	426	1
	Holland France Spain and Canaries	754	589 309	١
4			498 680	l
ì	United States British North America British India Australia Other countries	136	47 267	l
	British India	3,760 2,236	2,368 3,842	l
	Other countries	3,812	4,528	l
	TotalTons. Cast or Wrought	13,201 Iron.	13,559	
1	Russia	8o 633	41	
1	Holland	700.4	512 365	l
e	France Spain and Canaries. United States.	221.	942	l
0			136 210	l
	Brazil British N. America British N. America Possessions in S. Africa India Other countries	1,382	2,791	l
t	Possessions in S. Africa India	367 4.374	4,807	l
1	Other countries	3,634	3,288 3,850	l
	TotalTons.		18,154	
	France United States British N. America Australia	563 7:334	361 7.256	l
	British N. America Australia	470 253	x96 375	ļ
	Other countries	2,169	1,774	ı
	TotalTons.	10,789	9,962	l
	Unwrought Stee Month of Feb.	Month	of Feb.	l
	To 1877. 1878. France 243 203	£9,432	£7,981	ı
Ì	United States 312 425 Other countries.1,048 1,089	31,715	15,284 31,646	
	Total Tons1,603 1,717	£52,253		1
	Hardware and Cut	tlery.		
	Russia	£354	£1,585	
	Holland	7,394 8,676	5,985	
,	Spain and Canaries	8,725	8,741 6,832	
1	United States. Spanish West India Islands	6,877	5,060	
	Argentine Republic	16,044	4,388	
1	British North America	3,792 6,893 24,844	7,000	
1	Australia	39,331 57,955	19,325 45,843 64,844	
	Total£2	manuscript and community		
	Steam Engines.		£223,986	-
		lue for F	1878.	
	RussiaGermany	£30 3,074	£7,281	
,	France. Spain and Canaries	1,236	4,954 8,414	
1			845	
	Egypt. Brazil British India Australia.	1,212	5,600 36,715	
	Australia Other countries	26,195	14,257	
	Total £		£148,995	
-	Other Machinery	V.		
1	Russia	£867	£11,699 36,290	
1	Germany	26,343	11.800	
1	France	31,393 28,565	16,945 49,226 14,650	-

Drazii			1,212	5,000
British India			11,209	36,715
Australia			26,195	14,257
Other countries			50,168	66,622
Total		£1	06,381	£148,995
Oth	er Ma	chinery	1.	
Russia			£867	£11,699
Germany			39,797	36,290
Holland			26,343	11,800
Belgium			11,615	16,945
France			31,393	49,226
Spain and Canaries.			28,565	14,650
Egypt			1,817	7,447
United States			8,407	15,476
British India			35,818	42,381
Australia			18,757	29,487
Other countries			73,484	75,983
Total		_		-
steel rails is as ur	Iron I	Rails.		
		Month o	ended Feb	
To	1877.	1878.	1877.	1878.
Fussia	20//-		***//-	
Sweden and Nor.		774		£4,645
Germany	66		£435	
Spain		900	365	****
Italy	55	900	4,468	5,307
United States				4.8 8.8
Brazil	1,178	865	7,934	
Chili	E. E.	105	110	5,084
British N. America.	*5			
British India	2,415			41.7.6
Australia	1,416	7,002	14,515	44,146
Other countries		1,995	9.974	1.739
Other countries	1,783	857	12,071	5,363
TotalTons.		12,499	£48,972	£79,964
	Steel .	rearis.		
Russia				

588 7,392

remedy the great man recommended emigration, saying there were "millions of acres in America, Australia and Africa, where the untold millions of downtrodden Europe might emigrate." I can easily picture the "fine frenzy" of the speaker's eye and the vigor of his arms as he rolled out this sentence. The Conference nevertheless post-poned action as to emigration, and advo-cated strictes supervision of mines. Mr. W. Chappell, secretary to the South Yorkshire Miners' Association, in a speech delivered the other day, said the £150,000,000 invested in English collisies was at a converted. in English collieries was not now worth more

has again been interviewed on the tariff question during the week, and in reply said that on the Continent such matters were

settled by bargain and arrangement, which was not the system adopted by us, for we reduced our tariff. "But we cannot eat our cake and have it too," said Lord Derby, "and we cannot make many further reductions." tions, and are, therefore, not in the same position as those States who can yield a good

"THE AGE OF STEEL" was last week discoursed by Mr. W. Heeley (before the Staffordshire Mill and Forge Managers' Association), who concluded his Managers' Association), who concluded his paper by saying that good steel could now be purchased almost as cheaply as iron; they might say quite as cheaply as good iron. It was demonstrated beyond doubt that as much raw iron was made in 1877 as in the previous year, and yet many finished iron works through the country were standing for want of orders. He attributed this apparent anomaly to the circumstance that much of the molten metal and pig iron had been turned into Bessemer steel instead of into finished iron. Under these circumstance that into finished iron. Under these circumstances it behooved them, as managers, to look round and see if anything could be done to cheapen the manufacture of iron, and so keep pace with the times. Unless they did this they would soon be driven out of the field by the steel maker. After pointing out the way in which steel was rapidly taking the place of iron. Mr. Heeley want on taking the place of iron, Mr. Heeley went on to state that it was no use to blink at what was certainly a hard and stern reality. It was better that they should look the matter fairly in the face and recognize the truth. fairly in the face and recognize the truth. Only by the cheapening of iron could the almost defunct trade of many districts be resuscitated. The opinions expressed in the discussion which followed upon the reading of the paper (for which Mr. Heeley was heartily thanked) were generally that in view of the rapid strides which Bessemer metal was making, and the extensive general uses to which it was being put. the outlook uses to which it was being put, the outlook for the future in iron making was, to say the least, not hopeful. It was feared by some that the iron trade, especially the puddling branch, would altogether succumb through inadaptability to the necessities of the age.

SCOTCH PIG IRON has been fairly steady, with some increase of firmness in makers' prices. There are of firmness in makers' prices. There are now 87 furnaces blowing, as compared with 119 at the same date last year. The stock held by Connal & Co., Glasgow, stands at 170,356 tons, a decrease this week of 60 tons. Writing from Glasgow on March 9th, James Watson & Co. said: "The market opened strong this week at 51/3½ \$\mathbb{P}\$ ton cash for Warrants, and improved on Monday to 55/5; on the following day it was quieter, the price relapsing back to 51/3½, cash. On Wednesday an improvement again set in, and a good business was done from 51/4 @ 51/7 cash, and 52/1, three months open. 51/7 cash, and 52/1, three months open. Yesterday the market opened quietly at 51/4½, but the price advanced steadily to 51/6½ per ton, while to-day it is steady at 51/6 cash, closing sellers thereat. Shipments last week were 7860 tons, against 8630 tons in the corresponding week of

										ħ	No.	I.	No.
G. B. M., at (Hasg	ow.		 							. 52	10	50
Gartsherrie,	86			 		 					. 50	16	54
Coltness,	66										64		55
Summerlee.	4.6										58.		51
Langloan,	4.6										61		53
Carnbroe,	6.6												51
Calder, at Po	rt Du	indi	3.8					Ī			. 58	10	51
Glengarnock.													53
Eglinton.	6.6										.33		51
Dalmellingto	n. 66										.53		51
Shotts, at Le								Ĭ	Ī		60	0	50
Kinneil, at Be	o'nes	8					î				54	16	51

o.'s prices are similar to these.

There is a decided improvement in the Clyde shipbuilding departments, and some little change for the better at the malleable ironworks. At Langloan and Summerlee several new furnaces of very large size are Chambers & Co., the two blast furnaces are chambers and some dividend of 5 % and carry forward a balance to next account.

At the Thorncliffe Works of Newton, Several new furnaces are Calcutta, £5600 of castings, and £2700 of

miscellaneous ironwork. CLEVELAND IRON TRADE.

The official monthly returns of the Cleveland Ironmasters' Association for February give the subjoined details. The first column gives the number of furnaces blowing; the second, those out or damped down, and the

		_
Walker, Bell Brothers, Limited	5 3	10
Tolaw, Weardale Iron Co., Limited Tudhoe, Seaham, Watson, Kipling & Co	2 3	9 9
Total for February, 1878		164
B. Samuelson & Co. are building nace. The Consett Iron Company a ing one new furnace.	one	fur-
Make of Cleveland Pig Iron Tons		

Make of Cleveland Pig Iron.—Tons. Port of Middlesbro'. Month ending Jan. 31, 1878125,920 Feb. 28, 1878115,292	Total of district, 159,036 145,273
Decrease upon January, 1878 Make of other kinds of Iron (including I and Spiegeleisen).	
Month ending Jan. 31, 1878 Feb. 28, 1878	23,803
Decrease upon January, 1878	1 32,830

At Middlesboro', Connal & Co. have in core 54,843 tons, or 14,683 over the total

held at Christmas. The Cleveland blast furnacemen are to have their wages lowered by 10 per cent. Last week 1217 tons of rails were made at Bolckow, Vaughan & Co.'s New Eston Steel Works. The capacity of the place is, how-

ver, much greater than that. Hopkins, Gilkes & Co. are running off an Australian rail order.

TRADES OF SHEFFIELD.

Some of the smelters have been rather firmer during the week, owing to the resolution of the Cleveland smelters to take about 6000 tons of pig weekly out of the market. At present "Aireside Leeds" pig is quoted at No. 1, 52/; No. 2, 48/; No. 3, 46/; No. 4, 45/; forge, 45/; M, 44/; and W, 43/; "Acklam Yorkshire," No. 1 is 45/; No. 2, 43/; No. 3, 41/; and No. 4, 40/. Good Derbyshire and Yorkshire foundry brands range from 45/@ 47/6. Most of the foundries are fairly employed. During the week a step, which will probably lead to others of a similar kind elsewhere, has been taken here by John Brown & Co. and other leading employers, by the inaugurafirmer during the week, owing to the resoluother leading employers, by the inaugura-tion of a movement for reducing the wages of working engineers from 34/to 32/weekly. An extension of working time is also sought for, but the men resist both efforts as well as they can. The plan pursued by the employ-ers has, so far, been to give notices of dis-charge and to re-engage only those who are willing to receive the lower rates of pay-ment. The trade is in all cases anything but brisk, so that the men can hardly make a successful resistance, especially as the measure is understood to have been decided upon at a general meeting of all the leading local employers. The men's trade union have already the matter in hand, and have sent a deputation to one firm on the subject, but they were told that the movement would

progress, because "there were plenty of men to be had at 26/a week."

There is more work in hand in the general cast steel trade, taking that industry as a whole, some of the leading firms having such encouraging inquiries that they are gradu-ally increasing the number of their weekersen ally increasing the number of their workmen in several branches. The ordnance depart-ments are so much busier that I heard of one workman's time for last week being set down at eleven days and four hours! The directors of Charles Cammell & Com-

pany, Limited, have decided to recommend the payment of a dividend at the rate of £6 per share for the year ending December 31st, 1877. The annual meeting of the share-holders will be held here on March 27th. The directors of Samuel Fox & Company, Limited, Stocksbridge Works, have declared Limited, Stocksbridge Works, have declared an interim dividend for the past half year of £4 per share, or at the rate of 10 per cent. per annum. The directors of the Sheepbridge Coal and Iron Company have just issued a circular to the shareholders of the company in which they state, "that having regard to the state of the coal and iron trades, it is not advisable to make any interim payment on account of dividend, but to await the result of the financial year." to await the result of the financial year." This company is well established, and has

often paid 15 per cent.

William Jessop & Sons, Limited, pay a dividend of 5 % and carry forward a balance

several new furnaces or very large size are chambers & o., the two bins furnaces are being erected, so as to attain the largest producing about 600 tons weekly, and the possible output from each single furnace. Last week's Clyde shipments included creaming the statement of the statement have the several new forces. one department busily engaged on them for some time ahead.

In cutlery there is a steadier business do-ing with the United States, but the Australian demand is hardly so well sustained. A heavy trade is being transacted in large knives, &c., with Australasia generally and with India in very common goods. Mr. Shepard, United States consul at Bradford, sets forth in tabular form the exports from his consular district to the United States dur-ing February. The total value during the his consular district to the United States dur-ing February. The total value during the month reached £145,075, 17/8, against £157,-124. 2/5 last year. Of the former total, stuffs are down for £128,902; carpets, £1970; wool, £532; machinery, £1662. 12/6; iron and steel, £504. 2/; and oils, £528. 5/3.

THE QUARTERLY IVORY SALES in London have gone off favorably with an THE QUARTERLY IVORY SALES
in London have gone off favorably with an average maintenance of the following prices:
900 cwt. from Zanzibar and Bombay, soft grain, sound hollows, part slight defects,
generally £1 @ £2 higher. Teeth, 107 to 116
B, each at £60 @ £63; 70 to 89 B, £57. 15/
@ £61. 10/; 50 to 68 B, £55. 15/ @ £59. 10/;
3 90 49 B, £52. 10/ @ £57; 15 B, £44. 15/;
4 to 5 B, £26. 10/ @ £27. 15; 1 B, £44. 15/;
4 to 5 B, £26. 10/ @ £27. 15; 1 B, £46.
5/; ditto, all more or less cracked or
3 defective, generally £1 @ £2 higher; 100
3 to 105 B, £57. 15/ @ £59. 15/; 71 to 97 B,
£55. 10/ @ £59. 5/; 51 to 65 B, £53. 15/
3 @ £57. 15/; 36 to 48 B, £48 @ £54. 10/;
23 to 33 B, £38. 15/ @ £44. 5/; 19 B,
£30. 15/; 1 B, £9. 5/; ditto, diseased, stale
6 cr split, 102 B, £55; 70 to 85 B, £50. 10/ @
£55. 10/; 51 to 69 B, £50 @ £54 10/; 43 to
3 45 B, £50. 5/ @ £52; 34 B, £34. 5/: 16 B,

£30. 5/; ditto, very defective, 90 lb, £46; 50 to 69 lb, £48 @ £49. 5/; 37 to 48 lb, £31 15/ @ £43 5/; 24 lb, £30; 17 lb, £14; hard grain, sound hollows, part slight defects, generally £2 @ £3 higher; 73 to 77 lb, £52. 5/ @ £52. 15/; 50 to 67 lb, £59. 10/ @ £52. 15/; 45 to 48 lb, £48 @ £48 15/; ditto, all more or less cracked or defective, generally £4 of £4 higher; 73 lb. ally £2 to £4 higher; 120 lb, £54. 5/; 72 to 90 lb, £48. 15/@£53. 15/; 51 to 68 lb, £45 @£51. 10/; 49 lb, £42; ditto, diseased, stale or split, 100 lb, £42. 15/; 55 to 58 lb, £40 @£43. 10/; 42 to 47 lb, £36. 5/@£43. 10/; 28 to 29 lb, £35 @£30; 13 lb, £25 @cwt. Billiard ball scrivelloes, 2½ to 25% inches diameter, steady. Teeth 10 lb, at £56. 5/ P cwt. Solid scrivelloes, steady. Teeth 4 lb, at £30. 13/ P cwt. Cut points for billiard balls, 21 to 21 to 12 to 12 to 12 to 13 to 25 to 15 to 1 21/8 to 31/8 inches diameter, rather lower. Pieces 8 to 17 lb each, at £68. 5/ @ £72. 5/ Pieces 8 to 17 lb each, at £68. 5/ @ £72. 5/; 2½ to 2½ inches diameter, steady, 10 to 13 lb, £69. 5/ @ £73. 5/; 8 to 9 lb, £70. @ £75. 10/; 6 to 7¾ lb, £71. 10/ @ £73. 10/; 2¼ to 3 inches diameter, rather lower; 7 to 10 lb, £58. 5/ @ £72. 15/; 2¼ to 2¾ inches diameter, rather lower; 6 to 10 lb, £56. 6/ £59. 15/; cracked at points, 2¼ to 3 inches diameter, 10 lb, £61 @ £66; cracked at cut with a 1/2 to 3 lb, £65 @ £65. \$\frac{1}{2}\$ ends, 21/4 to 3 inches diameter, 7 to 8 lb, £40 @ £54. 5/; large points and tips, 38 lb 5/; 22 to 23 lb, £44. 10/@ £46. 5/ P cwt. Points part balls, full prices. Pieces 3 to 7 lb each at £52 @ £66. 15/; ditto, under size, full prices, 2 to 6 lb, £33 @ £52. 15/; points all more or less cracked or defective, 2 1/4 to 8 lb, £33 @ £50 % cwt. Bagatelle points, mostly £33 @ £50 \(\text{#} \) cwt. Bagatelle points, mostly 2 to 2 \(\frac{1}{2} \) inches diameter, steady.—Pieces, 4 to 9 \(\text{B} \) each at \(\frac{1}{2} \), 15/ @ £52. 10/ \(\text{#} \) cwt. Cut Hollows, good sound, higher. Pieces, 40 \(\text{B} \) each at \(\frac{1}{2} \), 15/; 10 to 13 \(\text{B} \), \(\frac{1}{2} \) 40. 5/ \(\text{#} \) £45. 15/; 5 to 9 \(\text{B} \), \(\frac{1}{2} \), 247. 15/ \(\text{@} \) £49. 15/; 4 to 4\(\frac{1}{2} \) \(\text{B} \), \(\frac{1}{2} \), 25 \(\text{@} \) £36; 2 to 2\(\frac{1}{2} \) \(\text{B} \), \(\frac{1}{2} \), 25 \(\text{@} \) \(\text{E26. 10}/ \); ditto, all more or less cracked or defective, 10 \(\text{B} \), \(\frac{1}{2} \), 10/\(\text{@} \) Io lb, £45 @ £48. 5/; 6 to 9 lb, £35. 10/ @ £48. 15/; 4 to 4½ lb, £26. 15/ @ £34 10/. STAFFORDSHIRE AND BIRMINGHAM.

The South Staffordshire iron trade is re The South Staffordshire iron trade is reported to be in a slightly better condition this week, owing to the more pacific aspect of politics, and also owing to the giving out of further government orders for warlike stores and general dock-yard iron. There is a good inquiry for sheets, plain and corru-gated. The founders are fairly well en-gaged, owing to the giving out of large orders for water mains by the Birmingham Corporation, albeit at the very low figures of £4. 5/ per ton. Agricultural fencing, gates and other ironwork of that ilk sell well. The machinists are pretty actively engaged, and the small arms factories appear to have more work in hand. The tube manufacturers are fairly busy on Admiralty orders. From Australia there is a weaker call for sheets and miscellaneous iron, recent advices showing most clearly that the mar-ket there has been greatly overstocked. Among the miscellaneous iron trade news of South Staffordshire I notice an item from Wolverhampton, which states that the Osier Bed Iron Company have resolved to stop their works and dissolve partnership, the concern having been losing money for several quarters, the loss last quarter having been £2000. The firm are wealthy and own two collieries, two blast furnaces, extensive tin plate and finished iron works. The col-liers lately offered to eat grass rather than work nine hours a day. Seven hundred workpeople are concerned. So much for Buckingham! If this be correct, which I have no specific reason for doubting, it merely typifies the fact that Staffordshire is rapidly slipping behind the times, and will never more "lead the van." SOUTH WALES AND MONMOUTHSHIRE.

At Dowlais and Ebbw Vale the Indian famine rail orders have been worked off, and Dowlais has now secured a Mexican order. There are also inquiries for 300 miles of rails for Africa. Last week's iron exports from Welsh ports and Newport (Mon.) reached 5030 tons, mostly railway lots for Bombay, Sweden and Bolivia, with 80 tons of sheets for Rotterdam and 160 tons for Amsterdam. At Landore a good govern-ment order has been placed for bars, &c., and at Bristol Messrs. Fox & Walker are making locomotives to the order of the war office. The Welsh coal trade has been fairly busy during the week, the shipments having reached 112,700 tons, of which 40,000 tons went to Fran e. A good deal of fuel is going to the Mediterranean ports

THE METAL MARKETS

have been a little more animated during the week, but the aggregate sales have not been of notable importance

Messrs. Von Dadelszen & North say : Messrs. Von Dadelszen & North say: "Copper steady. A moderate business in Chili bars G. O. B. at £64, 15/@ £65; named brands, £65. 10/; best brands, £66 @ £66. 10/. The charters for second half February are telegraphed as 2200 tons, of which tons were for the Continent. Little or thing doing in Australian. Wallaroo 400 tons were for the Continent. Little or nothing doing in Australian. Wallaroo quoted £76; Burra, £73 @ £74; English, £70 @ £71 for tough; £72 @ £73 for select; £75 @ £76 for manufactured. Tin in good demand, and prices improving. Strait Australian on the spot realized £64 @ Straits 10/, and £64. 10/@ £65 for forward. In Holland Banca has improved to 41fl., and Billiton, 39fl. The Dutch Trading Company will hold their usual sale of tin on the 20th inst., to consist of 15,000 slabs Banca and 6000 slabs additional, if they arrive in time. No Billiton. English ingot now held for £69; bars, £70. Tin Plates show little Lead continues dull and easier in price. English pig, £18 @ £18. 5/; soft Spanish, without silver, £17. 15/@ £17. 17/6; silver lead, £17. 5/. Spelter still quoted £18. 15/ for ordinary brands. Sheet Zinc.—Of 200 tons in public sale, 115 tons sold at £21. 15/ net at the works. Quicksilver, £7. 2/6. Antimony, £50 @ £51."

The Mining Journal remarks: "Cop-

per. - The position of copper is again getting worse. On the 1st instant the public stocks in Europe and quantities affoat for Europe ere 47,241 tons. Such a figure had never be ore been reached; the largest stocks, including the quantities affoat, previously known were 46,400 tons in November, 1870, during the Franco-German war, the price of Chili bars being then about £62. In March last the Franco-German war, the price of Chili bars being then about £62. In March last parts of the triangle, while the second caused has succeeded in putting 48,000 words on a continuation of the crack to the bottom of the plate. In the case of the low steel to fin foil about 10 inches square, of the plate. In the case of the low steel to form, although the statistics got gradually iron, although the other cracks did not ex- ble that diamond points will ultimately be

£30. 5/; ditto, very defective, 90 lb, £46; better by a few thousand tons, yet the price of to 69 lb, £48 @ £49. 5/; 37 to 48 lb, cf. Chili bars has receded within a few £31 15/ @ £43 5/; 24 lb, £30; 17 lb, £14; hard grain, sound hollows, part slight defects, generally £2 @ £3 higher; 73 to 77 lb, the same time everything tends to a still further large increase of the stocks. The charters from Chili for the second half of February were 2200 tons. This makes 8600 tons for the first two months of this year, or 4300 tons per month, which the minimum quantity we must expect to get from Chili this year. The supplies from Australia, which were expected to decrease, have only done so as regards one or two brands, but several new mines have been opened; the shipments are fully up to those of former years. The imports of Spanish precipitates and pyrites are on the increase, and it appears that the latter turn out 1 and 2 per cent. richer in copper than before. The production in the United States of America remains large, and the advices from New York speak again of a surplus stock of 5000 to 6000 tons, which will have to be exported this year. Who will buy this copper this time? The Frenchmen bought about 4300 tons in 1876, and the same quantity in 1877, but all the French contracts for cartrid-ges, for which this copper was used, have run off, and have not been renewed. While on one side we have the certainty of larger supplied than ever, we notice on the other a reduced consumption. Spelter.—The price of Silesian has scarcely shown any variation for a long time past, and good ordinary brands have been obtainable at £18. 15/, but favorites are held for a higher price. The tendency of our market, however, is not favorable for a rise, and lower rates are not unlikely. Lead.—This metal generally is one of the steadiest and perhaps less liable to fluctua-tions than others, but lately it has taken a most unfortunate turn and keeps continually drooping in price; and judging from the present appearance of the market, there is every indication of a further reduction, English is obtainable at £18, and Spanish, £17. 10/@ £17. 12/6. Tin.—A further ad-£17. 10/@ £17. 12/6. Tin.—A further advance has been quoted in this metal, but it is not always easy to discover a reason for every little rise which may take place, and at this moment we are at a disadvantage in tracing any particular feature for a change, and to warrant a rise of 20/ P ton in the quotations; however, as 20/ P ton upon the previous price is altogether a harmless affair and can make only a trifling difference to consumers, we will not criticise it too closely. Banca and English are in moderate stock. Banca and English are in moderate stock, refined English especially being very scarce. Banca quoted $17\frac{1}{2}\frac{1}{6}$; Straits, $14\frac{1}{2}\frac{1}{6}$; English, $14\frac{1}{2}\frac{1}{6}$; Referred, $14\frac{1}{2}\frac{1}{6}$, gold. We have only to notice the sale of 200 pigs of Straits at $14\frac{1}{2}\frac{1}{6}$. Tin Plates.—Unimproved and the New York market is also sluggish, the demand that exists being chiefly for jobling lots from store, prices, however, have bing lots from store; prices, however, have not perceptibly varied, stocks being very moderate. 500 boxes charcoal sold at \$5.75, gold. Quicksitver.—Only small sales have been made during the week at £7. 2/6."

Latest Liverpool Iron and Metal prices

	£	8.	d.	£	B.	d.
Merchant bar	5	17	60	6	5	1
in Wales	5	7	60	5	15	
Staffordshire	6	80	00	9	5	1
Hoop	7	10	000	8	10	
Sheet	8	5	0.03	9	5	
Nail rod	6	25	00	7	5	
Bar, best crown	6	10	00	7	5	-
Boiler plates	8	10	00	9	10	
Tin Plates, f. o. b. in Liver	rpoo	ol,	per be	w.		
	£.	R.	d.	£	8.	d

Copper, delivered in Liverpool, per ton £ 8. d 82 0 0 @ 75 0 0 @ 76 0 0 @ £ Bolt and sheathing.....Tile.....Tough cake. LIVERPOOL WEEKLY PETROLEUM STATISTICS.

Refined Oil quiet at 103/d. @ 11d. per allon. Deliveries from and stock in waregallon. house of Refined Petroleum and Spirit for week ending March 7, 1878 :

DELIVERIES.

Compound Armor Plates.

Additional experiments were recently Additional experiments were recently made at Portsmouth, England, to test Mr. A. Wilson's patent compound armor plates (wrought ronplate) faced with steel and Mr. J. D. Ellis's plates. The main point of difference between Mr. Wilson's process and that of Mr. Ellis is that the former gentleman pours the moltes steel on to the iron plate whils it in the formers of which it. plate while it is in the furnace, of which it in fact forms the bed, while the latter attaches the steel to the iron plate after it has turns, exactly the same kind of vibrations been heated in the furnace. Mr. Wilson will be imparted to the drum by the needle been heated in the furnace. Mr. Wilson produces his steel by the Siemens pro-cess, while Mr. Ellis adopts the Bessemer

The two plates in question consisted of equal thicknesses of steel and wrought iron, one having a face of low steel 4½ in. thick welded upon a backing of iron of the same thickness, the plate measuring 7 ft. 9 in. by 6 ft. 8 in. The other plate had a similar thickness of harder steel upon an iron backing of corresponding thickness. This plate measured 7 ft. 6 in. by 6 ft. 7 in. by 9 in. thick. Both the plates were firmly secured from behind with navy bolts to timber backing. Three rounds were fired at each plate from a muzzle-loading rifled gun with battering charges of 50 pounds of pebble powder and 250-pound Palliser projectiles point blank at 30 ft. range. The conditions, in fact, were similar to those in the previous experiments, except that in the last the projectiles were said to be of a somewhat harder character, and were also fitted with checks, which gave a higher terminal gas locity and rendered the ordeal somewhat more severe. The three shots on each plate were delivered at three marked points 2 ft. apart, and forming a triangle with the apex downward, the second shot in each case being delivered at the apex. The

tend beyond the steel. The projectiles, which all broke up on impact, each caused a budge of 3 in. to the rear of the iron plate, and it is a noteworthy circumstance that no cracks were developed except at the points of impact. On the whole, the behavior of the plate faced with low steel was consid-ered satisfactor;, the weld between the

metals in both cases being very perfect.

Not quite so satisfactory, however, were
the results with the second plate, which was faced with a harder steel, and which cracked and starred in all directions. The projectiles were broken up into small fragments, but they punished the plates severely, both steel and iron being cracked through. The third round told on one of the bolts, and caused a large portion of the plate—about one-third—to become detached. So far it one-third—to become detached. So far it would appear that the low steel is better adapted to resist the impact of heavy pro jectiles than hard steel, and this confirms the conclusions deduced from the results of the previous trials. The last experiments however, are considered inconclusive, and will probably be repeated with such modifi cations as experience suggests. The present position of the question broadly is, whether it were better to adopt for the protection of our ships iron armor, which does not fissure, but allows the projectiles to penetrate, or steel armor, which successfully resists the penetration of shot, but is at the same time itself broken up.

The Phonograph.

The most common mistake regarding Mr Thomas A. Edison's latest invention, the phonograph, is that electricity has anything to do with it, or that the machine is at all ostly or in any way complicated in its work ig. A reporter of the Evening Post paid visit yesterday to room No. 32 in the Tri bune building, and what follows is an ac curate account of what he heard and saw. It is very fortunate for the genial gentlemen who manipulated the phonograph for the amusement and instruction of the crowd of persons who constantly throng the room, with a puzzled expression on their faces, that the days when wizards got their deserts

at the stake have passed away.

Room No. 32 is a large and pleasant apartment on the fourth floor of the building; it is well lighted by two large windows, and was occupied at the time of the reporter's visit vesterday by some thirty or forty genn, drawn thither to see the most cu

rious invention of the age. On a table near the center of the room On a table near the center of the room was the far-famed phonograph, which can be briefly described as follows: A hollow cylinder of brass, about 9 inches long and 5 inches in diameter, is placed horizontally in very much the same way that a piece of wood or metal is placed between the chucks of a lathe to be turned; a brass rod runs through the center-of the cylinder, and at the end of this rod is a little grank which wood or metal is placed between the chucks of a lathe to be turned; a brass rod runs, through the center-of the cylinder, and at the end of this rod is a little crank which enables one to turn the cylinder around at any rate of speed desired; the rod to which this handle is fixed has a screw thread cut on its surface, so that when the cylinder is turned it shifts slowly to one side in such a way that if a pencil is held in a stationary position against the cylinder while it is turning it would trace a line like the thread of a special and very excellent quality. A steel position against the cylinder while it is turning it would trace a line like the thread of a screw. Instead of using a pencil a diminutive drum with only one tympanum (the lower one) is used; firmly attached to the under side of this lower tympanum is a small steel point like the point of a needle. When the bottom of this drum is made to vibrate from any cause—a touch, or even the vibration of the air—this steel point will vibrate with it, and in this simple fact is the whole secret of the phonograph. A thin sheet of common tin foil, such as is used to wrap tobacco in, is placed around the brass cylinder, which is set in motion; the little drum is now placed so that the point of the needle just touches the tin foil. The slightest movement of the tympanum of the drum will make the needle scratch the surface of the tin sheet as the cylinder moves. Talking into the open end of the drum gives the tympanum this needed vibration. Suppose that a sentence eight or ten words long is spoken into the little drum, and the line which the needle makes on drum, and the time which the needle makes on the tin sheet is examined, the line is seen to be made up of tiny dots which the point of the needle made; where the pitch of the voice was high the vibrations of the drumskin or tympanum were very rapid, and the dots were very close together; where the voice was deep the dots were further apart. where the Where the sound was very loud, the vibrations of the tympanum were very energetic, and the point was pushed far in and made very deep indentations. If, now, the needle point is placed at the beginning of this dotted line and held on the line while the cylinder passing over the indentations as the drum mparted to the needle when the indenta If the indentations are tions were made If the indentations are very close together the vibrations of the drum skin will be very rigid, and the note heard will be correspondingly high, and un-

respondingly low.

The voice of the phonograph in its present state of perfection is that of a person talk-ing in a loud voice in an adjoining room with the door closed. Any sound, no matter with the door closed. Any sound, no matter what, is faithfully reproduced. Laughing, whistling, coughing, singing and ordinary speaking. The invention is yet in its infancy, and what may be the improvements which will speedily and probably follow it is impossible to say. Mr. Edison has already succeeded in making the phonograph sufficiently delicate to record and reproduce the words of a speaker. and reproduce the words of a speaker, talking in an ordinary way, four feet from the instrument. The power with which the sound can be reproduced depends entirely on the species of sounding-board which is used, and on this point more decided results will no doubt soon be obtained. At present in a large room full of persons there is no each difficulty in hearing the words distinctly The from all parts of the room. The amount of The amount of case being delivered at the apex. The from all parts of the recorded on a small plate from the point of impact to the plate from the point of impact to the apex of the triangle, while the second caused has succeeded in putting 48,000 words on apex of the triangle, while the second caused has succeeded in putting 48,000 words on a best of the following to inches square.

der contrary conditions the note will be cor

used. Mr. Edison is confident that he will soon be able to reproduce the slightest whis-per as well as the screech of a steam-

Iron Minerals in Belgium .- It appears that the imports of minerals into Belgium last year amounted to 783,000 tons, as compared with 671,000 tons in 1876, and 804,000 tons in 1875. The exports of minerals from Belgium in 1877 were 216,000 tons, against 166,000 tons in 1876, and 142,000 tons in 1875. France was the principal importer of The exports of minerals from Belgian minerals last year.

The total power of all the steam engines existing in France, according to recent official statistics, is 1,500,000 horse-power, representing the actual labor of 4,500,000 horses, or 31,500,000 men. This last aggregate is equal to ten times the present industrial population, which amounts to 8,400,uls, but from which must be subtracted ooo souls, but from which must be subtracted old people, women and children, leaving a remainder of 3,200,000 workingmen. La Nature compares the above data with the similar statistics of 1788, before steam engines were introduced in France, and illustrates the revolution which steam and improved machinery have produced. Ninety years ago, in every £40,000,000 worth of French products, 60 per cent. of the value represented labor and 40 per cent. raw material. To-day this ratio is exactly reversed, although labor has increased 40 per cent. At the present time the total industrial productions of France aggregate a value of about £480,000,000. Of this £280,value of about £480,000,000. Of this £280,000,000 represents raw material and the remainder labor. If the same proportion as existed in 1788 applied now, taking into account the increase in labor noted above, no less than eleven-twelfths of the above amount, or £440,000,000, would be the cost of handiwork. Roughly, then, steam engines and improved tools have produced an economy of £240,000,000; but, more than economy of £240,000,000; but, more than this, if they were suddenly swept out of existence and forgotten, there are not enough men and animals in the country to supply an equivalent amount of power, and even if were there would be no way of procuring the necessary food for their support

Although the Italian authorities are delighted with the success of the Armstrong 100-ton gun, with which they are going to arm the Duilio and the Dandolo, there is a transfer to the rowth of the production. arm the Dullo and the Dandolo, there is a strong "patriot" party in the newly-formed kingdom which is anxious to supersede the foreigner if the achievement be possible. Gen. Rosset, the Italian Director of Artillery, and who has been for a long time at the head of the Royal Gun Foundry at Turin, has persistently endeavored to vie with the famous ordnance works at Elswick. For this purpose he made, special and very excellent quality. A steel tube will form the core of the gun, and the body will be clasped outside by steel rings. The 60-ton gun was made on the same principle, though there may be some variation in details. But we acknowledge a feeling of apprehension as to the safety of a gun constructed of such materials, and on so large a scale. We can only hope that the gun will not burst ex-plosively, but will give warning by cracking some of the outer rings, the result which, we believe, occurred with the gun of 60 tons.

The Sutro tunnel head is within 1000 feet of the Chollar-Norcross-Savage combination shaft, to the northward of which it will pass several hundred feet, at a depth of 1508 feet striking the Savage mine at a depth of 645 feet. There are now only about 1000 1645 feet. to cut to the Comstock-a distance which it is supposed may be traversed by the 1st of next June at latest. As now cut, the tunnel is but 8x10 feet and ultimately must be enlarged. At the Comstock, branch-drifts are to be thrown off northward as far as the Utah, and southward to the Baltimore-American. And by the re-quisition of the Act of Congress the tunnel must also be continued through the moun-tain to the west side into Washoe Valley. cal or a scheme that was never intended to be carried out in earnest. Happily, however, Sutro had the energy to push his measure through Congress, as he also has had the energy to find the means to push his tunnel head more than three miles and three quarters into Mount Davidson. According to the lead wress the header was cording to the local press the header was driven 216 feet in February, and now advances about 65 feet a week.

Some specimens of armor plates made by Zug & Co., of Pittsburgh, by the Wheeler process, have attracted considerable attention. This process is a combination of iron and steel. The pile for the plates was constructed as follows: A wroughtiron plate, 8 1/2 x 15 1/2 inches, 3/2 inch thick, formed the bottom; on this was placed a series of longitudinal iron-coated steel (high in carbon) bars, 2x11-16 inches; a second series of the same material placed crosswise; an iron plate similar to the bottom : another series of longitudinal bars; an iron plate another series of crosswise bars, and all covered by an iron plate—the whole forming a pile 8 ½ x15 ½ x5 ½ inches. It was then placed in the heating furnace and rolled out, in one heat, into a plate 8 inches wide by 1½ inch thick and 6 feet long. A wide by 1½ inch thick and 6 feet long. A section 8 inches long was cut from this and the end polished, to show its structure. The welds were so perfect as to be imperceptible, although the alternations of the iron

&c., do not give a clear tone on being struck &c., do not give a clear tone on being struck, but a dead-like, dull one. It has been found by M. Lilliman that the power of sounding clearly may be imparted to them by immersing them for a half to one minute in a paraffine or oil bath, heated to a temperature 5 deg. to 5.5 deg. below the boiling point, then taking out and allowing to cool. This does not produce any diminution of density, but a considerable increase of the hardness and rigidity. ness and rigidity.

The anthracite of the Queen Charlotte Islands, British Columbia, is said to compare favorably with that from Pennsylvania. The following analyses by Dr. Harrington were from samples collected by Mr. Richardson; No. 1 being from the 6-foot seam; No. 2 from the so-called 3-foot seam (2 feet 5

inches):		
Water	3.60	11,
Volatile combustible chamber	5.00	4.77
Fixed carbon	83.00	85.76
Sulphur	1.53	0.89
Ash	8.76	6.69
Watel	TORSON MANAGEMENT	MATERIAL PROPERTY.

The average composition of the coals of Vancouver Island is, according to Dr. Har-

rington:		
8	low cok'g.	Fast cok'g.
Water	. 1.47	1.47
Volatile combustible matter		32.69
Fixed carbon		59.55
Ash	6.29	6.29
	-	-
Total	. 100.00	100.00

A correspondent whose letter appeared in the London Times, disputes the claim of Professor Bell to the invention of the tele-phone. He says that as far back as 1860 a phone. He says that as far back as 1860 a Mr. Philipp Reis read a paper at a meeting of the Physical Society, at Frankfort-on-the-Main, which was printed in the annual proceedings of that society, describing an instrument which he constructed in order to explain the functions of the care but which explain the functions of the ear, but which also serves, he said, to transmit all kinds of sounds by means of a galvanic current to any distance, and he called this instrument a telephone. The inventor of this telephone was born January 7th, 1834, at Giessen, and died January 14th, 1874.

The navy estimates of England for 1878-The navy estimates of England for 107, 79 amount to a total of £11,053,901, as against £10,971,829 for last year. The cost of maintaining the dockyards, and of labor for the repair and construction of ships is calculated to absorb £1,350,440; stores, &c., will call for an outlay of £1,199,300, and and to the purchase of ships built by private contract. The principal feature in the programme laid down for the year 1878-79 is that four new ironclads are to be commenced at Pembroke, Chatham and Portsmouth. mouth. A new torpedo ram is also to be

A boy has been sent by express over the crooked roads of Pennsylvania. The way-bill ran: "One boy from T. H. Walton, Dowlestown, to W. W. DeWitt, White Haven, weight, 50 pounds." As it was necessary to make several changes, his friends concluded that it would be safer to send him by express; and accordingly a tag was fastened to a button-hole, eight messengers checked and receipted for him, and finally he was delivered at his destination in excellent order.

The Joplin Mining News says: A number of the mining companies contemplate a radi-cal change in the royalty on lead which they are exacting from the miners. The plan they propose to establish is to be governed by the price of lead in St. Louis, and to raise and fall with that market. This would be very just and at the same time acceptable to the miners, who can make no bonanza with lead at \$3.50 a hundred and the royalty the same as it was when it sold for \$7 in St. Louis

The German patent office received 6424 applications for patents during the past year, a greater number than any other country can boast of except the United

London Metal Market.

(From The Mining Journal.) Pig, am, f.o. h., Clyde...
Scotch, all No. 1.
Bars, Welsh, f. o. h. Wales
in London...
Staff'd, in London...
in Tyne or Tees...
Swedish, London...
Swedish, London...
Sheets, Staff., in London.
Plates, ship; in London. 11 12 5 15 0 10 15 0 15 Hoops, Staff 7 Nail Rods, Staff, in L'ndon 6 Nail Roos, Street
English, spring.....
Cast......
Swedish, keg fag., ham.

Lend.

Lend 7 7 0 0 5 10 17 33 10 36 0 18 0 20 26 2 Flasks of 75 lbs, ware
Rpe-lier.
Silosian or Rhenish.
English, Swansea
Sheet Zinc.
Tin.
Bars.
Bars.
Bars.
Australian.
Banca. 23 10 Best Selected 74
Sheets and Sheathing 74
Sheets and Sheathing 75
Flat Bottoms 76
Wallarco 76
Burra, or P. C. 73
Other brands 76
Chill bars, g. o. b. 75
Phensher Bronze.
Bearing Metal. 112
Other Alloys 120
Wire. 120
Wire. welds were so perfect as to be imperceptible, although the alternations of the iron and steel were plainly visible from the higher polish of the latter. This is one of the best tests yet made of the combination process, and was highly satisfactory.

Many alloys of tin and other soft metals hardened by addition of antimony, copper,

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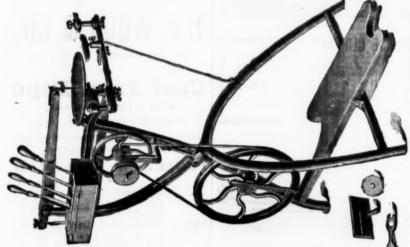
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int.—A SCROLL SAW, with Tilting Table for inlaid fork; arms is inches in the clear; clamps which will pold saws of any length or width, and face them in our different directions; cutting lumber from 1-6th 0.1 hoch in thickness; apped, we strokes per minute.

h will cut lumber one-nau incurse.

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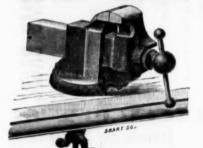
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trade to our New Straight Bar Wrench, widened. full size of the larger part of the so called "reinforced or jog bar," Also our enlarged jaw, made with ribs on the inside, having a full bearing on the front of bar (see sectional view), making the jaw fully equal to any strain the bar may be subjected to.

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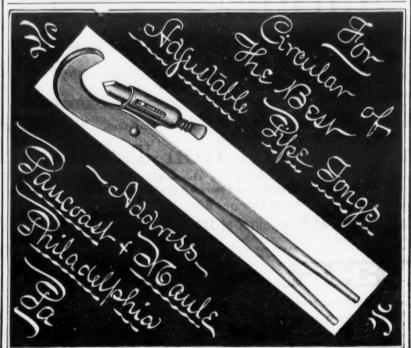
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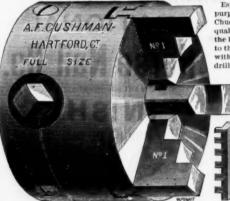
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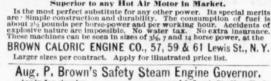
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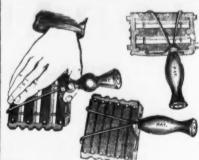
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Cook R. & Sons, Winsted, Ct. 12 Spring Perch Co., Bridgeport, Conn. Hetchkas Guy C., Frein & Po., Brooklyn, E. O., 35 The Ækins pring and Agle Co., Bridgeport, Conn., 35 Wilson, Walker & Co., Pittsburgh, Ps., 4	Kreischer B.& son. 58 Goerck, N. Y 17 Newton & Co., Albany, N. Y 17	Hammer & Co., Branford, Ct
wilson, Walker & Co., Pittsburgh, Pa	Hall A. & Sons, Perts Amooy, N. J. Hall & Sons, Buffalo, N. Y. 17 Maurer Henry, 418 Enat 23d, N. Y. 17 Merescher B.& Son, Se Geerek, N. Y. 17 Newton & Co., Albany, N. Y. 17 Newton & Son, Troy, N. Y. 17 Valentine M. D. & Bro., Woodbridge, N. J. 17 Watson John R. Perth Amboy, N. J. 17 Weeer Adam, 633 E. 15th, N. Y. 17 Itre Kegners.	N. Y. Handle & Mallet Works, 456 E. Houston
Barn Door Haugers. Moore, S. H. & E. Y., Chicago, Ills	Weoer Adam, 633 E. 15th, N. Y	
Shelton Co., Birmingham. Conn. 12	Filst and Emery Paper and Clots. Baeder, Adamson & Co. 730 Market, Phila	Murray Iron Works, Burlington, Iowa
Bella (Slatch)	Barnum E. T., Detro t. Mich	Metal Dealers and Brekers. Grane U. J. 104 John. N. Y. Diokerson, Van Dusen & Co. 29 & 31 Cliff, N. Y. Greig H. L. Co. Jos Walnut, Phills. Phens, Dodge & Co. Cliff, bet. John & Fulton, N. Y. Purves A. & Son, cor. South and Penn, Phills. Quincy J. W. 38 William, N. T. Sellew R. & Co. St. Leuis Mo. 2
Bevin Bros. Mfg. Co., Easthampton, Conn 7	Burbank R. Evanaville Ind	Phenos, Dodge & Co., Cliff, bet, John & Fulton, N. X.
Boiling. Leather. Makers of.	Fluting Machines. The American Machine Co., Philadelphia. 34 Weeks A. A., 82 John, N. Y. 18	Quincy J. W., 58 William, N. F
Bird Lages, Makers of.	Forges. Portable, etc.	Hogen Ethow Co. Cleveland O
Hemz, Fierce & Musselnauer, Bullato, N. 1. Jewett John C. & Sons, Buffalo, N. Y. Lindeman O. & Co., 284 Pearl, N. Y. Maxheimer John, 249 Pearl, N. Y. Osborn Mig. Co., 9 Bleccker, N. Y. 8	Blown T. J. Pockwood Tonn	Metallurgists. Briton J. Blodgett 339 Walnut Phila
Bit Braces, Manufacturers of. Miliagram alla Mfg. Co., 74 Chambers, N. Y	Whitehead Bros., 517 W. 15th, N. V.	Hayes G., 71 8th ave. Metni Roofing. Brass Goods Mig. Co., 280 Pearl N. Y.
Miler's Falls Mig. Co., 'A Chambers, N. 1	Richmond & Potta 119 S Fourth Photo to	Brass Goods Mig. Co., 280 Pearl N. Y
Penfeld Block Works, Locknort, N. Y. 12 Providence Tool Co., Providence, R. I	Cary & Moen, 234 W. 29th, N. V	James Boyd's Sons. 10 and 12 Franklin, N. V. 39
Blooms. Oberg Peter & Co., Paterson, N. J	Lefterts Marshall Jr., 90 Beekman, N. Y	Mineral Lands, Dealer in Hoskins W. A. Chattanoors, Tenn.
Blowers. Makers of. Reystone Portable Forge Co., Philadelphia	Grant Fan Mill and Cradle Co., Melrose, Rensselaer Co., N. Y	Mineral Wool. Elbers, Alexander D., 26% Brosdway, N. Y
Ragle Bolt Works, Philadelphia, Pa		Ebernard Geo, F. & Co., Canton, O., 5
Boot and Shoe Heel Stiffeners. Lyon N., Albany, N. Y	Cooper & Holle, Brooklyn, N. Y	Moulding Machines. Aikin & Drummond, Louisville, Ky
Berax. Coleman Wm. T. & Co., 189 Pearl, N. Y	Windmuller I out & Death as a	Olletz R. E. 54 and 56 Fulton. N. Y. 40 Ollve E. 106 & 108 Beckman, N. Y. 3 Ripley Mfg. Co., Unionville, Corn. 3
Brass Butts, Makers of Tiebout W. J., 230 Pearl, N. Y	Suppowder, Makers of. Kneeland F L. (Dupont) 70 Wall, N. Y. 20 Kneeland F L. (Dupont) 70 Wall, N. Y. 32 Lallin & Rand Powder Co. 26 Murray, N. Y. 32 Hardwave Commission Merchants. 34 Biddin Philip S., 190 (Lambers, N. Y. 13)	Haber Henry, Canton, O
Brass. Manufacturers of. Ansoais Brass and Copper Co., 19 CHff. N. Y. J. R. Baker, Anti-Friction Metal Co. 400 Canal N.Y. 8 Brass Goods Mfx. Co., 280 Pearl, N. Y. Davoi John & Sons. 100 John, N.Y. Rolmes Booth & Havdens A9 Chambers, N. Y. Manhaitan Brass Co. 83 Reade, N. Y. 2	Hardware Commission Merchanis. 13 13 15 15 16 16 17 17 18 18 18 18 18 18	Nalls Auros Iron & Nail Co., Aurosa Ind
Davoi John & Sous. 100 John, N Y	Salomon L., 100 Chambers, N. Y	Zug & Co., Pittsburgh, Pa. 4 Nati Machinery Coyne & Hatry, Pittsburgh, Pa. 4
Manhattan Brass Co. 38 Reade, N. Y. 2 Miller Edw. & Co., 35 Warren, N. Y. 2 Plume & Atwood Mfc. Co., 80 Chambers, N. Y. 2 Scyrlli Mfg. Co., 421 Broome, N. Y. 2 Wateroury Brass Co., 296 Broadway, N. 1 2	Walbridge G. B. & Co., 83 Reade, N. Y	
Scovili Mfg. Co. 421 Broome, N. Y	Brower John I. & Son, 288 Greenwich, N.). 9 Liovd. Supplee & Walton. & Market, Phila. 34 Quackenousa, Townsend & Co., 50 Reade. N. Y. 34 Shepara Sidney & Co., Buffalo N. Y. 31	Hartman John 3714 N. Seventh, Philadelphia 28 Jackson Geo. W., 21 E. 18, N. Y. 28 Nickel Pluters 31 piplies Coit A. T., 43 Beckman, N. Y. 28 Zucker & Levett, 639 & 641 W. 51st, N. Y. 28
Bridge Builders. Moseley fron Bridge and Roof Co., 5 Dey, N. Y 4	Hardware Importers. Boker Hermann & Co., 101 Duane N V	Colt A. T., 47 Beekman, N. Y
Butcher and Shoe Knives, Manufacturersof, Wilson John. Shemeld. England	Hardware importers. Boker Hermann & Co., 101 Duane, N. Y	Night Latches, Many Francis, 143 Chambers, N. Y
American Spiral Spring Butt Co. 82 Beekman, N. Y. 40 Sabin Mig. Co., Montpeller, Vt. 33 Semple & Birre Mig. Co., St. Louis, Mo. 6. Union Mig. Co., St. Louis, Mo. 7	Hardware Manufacturers, American Spiral Spring But Co., 82 Beekman, N. Y. 40	Note Broker.
Union Mfg. Co 98 Chambers, N. Y	Enterprise Mig. Co., Phila	Nuts. Bolts. etc., Makers of. Cark Bros. & Co. Middele. Conn
Orringe fiolts. Makers or. Peck, Stow & Wilcox Co., 43 Chambers, N. Y	Humason & Beckiev Mig. Co. 100 Chambers, N. Y. 34 Lloyd, Supplee & Walton, 64: Market St. Phila. Pa., 28 Miller's Falls Mfg. Co., 74 Chambers, N. Y.	Haskell W. H. & Co., 133 Green wich, N. Y. 4 Haskell W. H. & Co., 134 Green wich, N. Y. 4 Lewis, Oliver & Phillips, Pittsburgh, Pa. 15
Townsend. Wison & Hubberd, Phila	Windmulier Louis & Roelker 20 Reside N. Y. 20 Hardware Manufactarers 20 Reside N. Y. 40 Cowles Hardware Co. Uniovulle, Conn. 12 Enterprise Mrg. Co., Phila. Hart, Bilven & Mead Mrg. Co., 167 Chambers, N. Y. 34 Hurnson & Beckley Mrg. Co. 109 Chambers, N. Y. 34 Lloyd, Supplee & Walton, 621 Market St., Phila. Pa. 28 Miller's Falls Mrg. Co., 74 Chatt cers, N. Y. 35 Hart, Bilven & Mead N. Y. 45 Pratt & Co., Buffalo, N. Y. 45 Russell & Erwin Mrg. Co., New York, 10 Sedgwick Mrg. Co., Pouchkeensele, N. Y. 13 Stanley Wyrks, New Britain, Conn. 33 Union Mrg. Co. 50 Chambers, N. Y. 7 Van Wagoner & Williams & Beekman, N. Y. 40 Hardware Specialties.	Gailauger F. W 3 and 5 Wail. N. Y. **Wats. **Boths. etc., **Makers of.** Cark 3ros. a Co. Middale. Conn. 12 Fuiler Bros. a Co., & 38 oreen wich, N. Y. 44 Haskell W. H. & Co., Pawtucket, R. I. 34 Lewis, Oliver & Phillips. Pittsburgh, Ps. 15 Russell, Birdsall & Ward, Port Chester, N. Y. 40 Shelton Co., Birnamcham, Conn. 40 Standard Nut Co., Pittsburgh, Ps. 6 Sternbergh J. H., Hesading, Ps. 40 Union Nut Co., 99 Chambers, N. Y. 34 **Others.**
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Carriage Aprings. Reock John H. & Co., Newark, N. J	Hardware Specialties, Grant & Co., Newark, N. J	Merton Olier Co Biddeford, Me
Castings. (Gray fron) Wilson, Parsons & Co., Bridgeport, Conn	Hardware Specialties. Grant € Co., Newark. N. J. 34 Jessup & Sterine. 7 and 9 Ulff. N. Y. 4 Semple & Birge Mfg. Co. St. Louis. Mo. 33 Shepare Sidney & Co., Buffaio. N. Y. 31 Shencer & Underfail. 9 Chambers. N. Y. 8	Boyd & Chase 107th and Harley Plans N. W.
Chinein, Manufacturers of . Buck Bros., Millbury, Mass.,	Harness Snaps. Covert Mfg. Co., Troy, N. Y	Old Iron, etc. Grew H L. & Co 108 Wainut, Philadelphia
Clocks. Springs. etc. Cary & Moen, 234 W. 29th, N. Y	Lewis, Oliver & Philitps, Pittsburgh, Pa	Bracking (**Lenm). "Empire Packing," Canfield Mig. Co., Philadelphia 26 Symonds & Co., Philadelphia
	Chambers Bering & Quinlan, Decatur, III. 25	Paint (Iron). P.ttaburgh Iron Paint Co., Pittaburgh, Pa
Con 1. Miners of . Lehigh Valley Coal Co., cor Courtlandt and Church, N. Y. 28 Pardee A & Co. '11 Broadway, N. Y. 28 The Hoboken Coal Co., Jersey City, N. J. 33	Mundy J. S., Newark, N. J	Paints and Olis, Dealers in. Devoe F. W. & Co., 117 Fulton, N. Y. Paus, (Orlpping and Bread.) Lewis, Daizell & Co., Pittsburgh, Pa
Contand Coke Washing Machines.	Hotel ing Machines. Harrington Edwin & Son, Philadelphia, Pa	Levis, Insies & Co. Fittenuryn, Fa. 28 Patent Solicitors. Howson & Son, Phila, and Washington, D. C. 28 Lenz & Schmidt, Berlin, N. W. 188. 28 Lenz & Schmidt, Berlin, N. W. 188. 28 Stenor, T. H. 28 State Boston, Mass. Stenor, T. B. 28 Murray N. Y. 23 Pens (Michaella D. 28 Murray N. Y. 23)
Cont Vases. Sidney Shepard & Co., Buffalo, N. Y	Shannon J. J., Philedelphia, Pa	Stetson Thomas D. 23 Murray N. Y
Coffee and Spice Mills. Lane Brothers, Millbrook, N. Y	Champion Steel Horse Nail Co., Appleton, Wis	Pens (Mirel). Perry & Co., Limited, 112 & 114 William, N. Y. 28 Picks, Makers of Pierson & Co., 24 Broadway, N. Y. 2
Companses and Dividers, Manufacturers of Bemis & Call Bardw. & Tool Co., Springfield, Mass. 32	National Horse Nail Co., Vergennes, Vt 25 Northwestern Horse Nail Co., Chicago, III. 26	Pies. Fittings, etc., Makers of. Katon. Cole & Burnham Co., 58 John. N. Y
D. R. Barton Tool Co., Rochester, N. Y	New York Handle & Mailet W rks, 456 E. Houston. 31 Horse Cilippers. Shannon J. J., Philedelphia, Pa. Horse Mills. Mukers of Ausable Horse Nail Co. 25 Chambers. N. Y. Champion Steel Horse Nail Co., Appleton, Wis. Globe Nail Co., Boston, Mass. St. National Horse Nail to., Vergennes, Vt. Northwestern Horse Nail to., Vergennes, Vt. Northwestern Horse Nail to., Vergennes, Vt. Putnam Nail Co., Neponset, Mass. St. Horse Shoes, Mukers of,	Browning Losoph Philadelphia
Copper. Pope, Cole & Co., Baltimore, Md	Boston Bolling Mills, 17 Batterymarch, Boston 4 Burden Iron Works, Troy, N. Y	McNeal & Archer, Burlington, N. J
Chambers, Bering & Quinian, Decarur, Lil 85	Schoenberger & Co., Pittsburgh, Pa	Plane Irons, Manufacturer of Buck Bros., Milibury, Mass.
Corn Shellers. Rumsey & Co., Seneca Falls, N. Y	Hydraulic Jacks, Dudgeon Richard, 24 Columbia, N. Y	Wood R. D. & Co., 400 Chesnut, Phila. 26 Plane I rous, Manufacturer of Buck Bros., Millbury, Mass. 11 D. R. Barton Tool Co., Rochester, N. Y . 13 Pisnes. Manufacturers of Batter Wringing Machine Co., 59 Chambers, N. Y . 25 D. R. Bartou Tool Co., Rochester, N. Y . 13 Stanier Rule & Level Co., 35 Chambers, N. Y . 8 Plated Ware Derby Silver Co., Derby, Ct 40 Hall, Elton & Co., 75 Chambers, N. Y . 11 Piters. 11
Moseley Iron Bridge and Roof Co., 5 Dev. N. V.	Lyon B. & Co. 47 Orand, S. 1	Stanier Rule & Level Co., & Cnambers, N. Y
Croquet, B. Blies Mg. Co., Pawtucket, B. I. 12 Oracibles, Manufacsurers of, Wile, Siedel & Co., 59 Markey, Phila. 25 Cup-ins & Blowers.	Hoynton Geo. A., 70 Wall, N. Y Etting Edward J., Philudelphia, Pa.	Derby Silver Co., Derby. Ct. 40 Hall, Elton & Co., 75 Chambers, N. Y. 11 Pilers.
Wile, Siedel & Co., 709 Market, Pulla	Hartford Steam Boller Inspection and Insurance Co. 38 Iron Brokers. Boynton Geo. A. 70 Wall, N. Y. Etting Edward J., Philadelphia, Pa. 5 Hatry A. G., Pittsburgh, Pa. 4 Hazard I. D. 201 Fearl N. 4 Iron. Charvest W. 8 William, Cold Bloss. Adms Hugh W. 55 Pine, N. 7 Lowe S. B., Chattanooga, Tenn. 5 Spooner & Collins, St. Lonis, Mo. 6 Iron. Pig., Insporters or. 6 Iron. Pig., Insporters or. 6 Iron. Pig., Insporters or. 6	Hagstoz & Thorpe, Ledger Building, Phila. 11 Plasmbers' Materials, Manufacturers of Everhart Jas. M., Scranton, Ps
Curry Combs. Manufacturers of. Hotchkiss' Sons, Bridgebort, Conn	Quincy John W., 55 William, N. Y	Pocket Kaives.
Lawrence Curry Comb Co., 382 2a Avenue, N. Y. 26 Cuttery, Importer of. Boker Hermann & Co., 9th Duane, N. Y. 35 Clatworthy F. & W. 52 Chambers, N. Y. 11 steher Jos. S., 411 Commerce, Phila. 11 friedmann & Lauterjung, 1d Warren, N. Y. 11 Cutters, Manufacturers of. Horstmann & Lauterjung, 1d Warren, N. Y. 11 Burkinshaw M. C., 2d Grambers, N. Y. 11 Naugatow M. C., 2d Grambers, N. Y. 11 Naugatow Kuife Co., 80 Chambers, N. Y. 11 The Frary Cuttery Co., Bridgeport, Conn. 11 The Lauson & Goodnow Mfg. Co., 38 Chambers, N. Y. 11 The Lauson & Goodnow Mfg. Co., 38 Chambers, N. Y. 11	Lowe S. B., Chattanooga, Tenn. 6 Spooner & Collins, St. Lonis, Mo. 6 Iron. Pig. Importers of. Williamson James & Co. 69 Wall, N. Y. 4	Boker Hermann & Co., 101 Duane, N. Y
Clatworthy F. & W., \$2 Chambers, N. Y	Williamson James & Co., 69 Wall, N. Y	Bliss & Williams, 167 Plymouth, Brooklyn
Cutlers. Manufacturers of. Burkinshaw Aaron. Pepperell. Mass	Bonnell, Botsford & Co., Youngstown, O	Promaire Blawers. Makers of
Meriden Cutlery Co., 49 Chambers, N. Y	Cooney Daniel F, 88 Washington, N. Y. Huerstel G. 99 Market Slip. N. Y. Fuller, Lord & Co., 139 Green wich, N. Y.	Reystone Fortatole Forge Co., Printagephia
The Lamson & Goodnow Mfg. Co 38 Chambers	Hurrtson & Gilloon, 558 to 562 Water, N. Y. Jackson & Chase, 306 and 208 Franklin, N. Y. Judson B F. 487 and 459 Water, N. V. 4	Providence Tool Co., Providence, R. I
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Deer and Gate Springs. Dunne P. R., 182 Fulton, N. Y	Richards D. W & Co., 22 Mangin St. N. V. Wallace Win. H. & Co., Albany and Washington	Dougras W. & B., Miosteriown Cosn. Rumsey G. O., Seneca Fails, N. Y
Am Dredging Co., 10 8 Delaware eve Phila	streets, N. Y	Union Mrg. Co., 38 Chambers, N. Y
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Lambertville aron Works, Lambertville, N. J	Boston Rolling Mills, 17 Batterymarch, Boston	Cieveland Rolling Mill Co., Cieveland, O.,
Thorne, DeHaven. & Co., Philadelphia	Burden Iron Works, Troy, N. Y Cleveland Rolling Mill Co., Cleveland, O., 6 Collins H. E. & Co., Pittshurgh, P., 6	Wilson, Walker & Co., Pittsburgh, Ps
Brop Presses. Beecher & Peck, New Haven, Coan	Houdiette & Ella, Boaton, Mass.	Leuley Alex M. 226 W. 234 N. V
Beecher & Feck, New Haven, Coon	Leonard John, 450 & 451 West st. N. Y. Oxford Iron Co., 81 Washington, N. Y. 4	Revolving Scraper Co., Columbus, O
Elevating and Conveying Machines, Fitshugh J. R., 428 Market, Phila	Roane Iron Co., Chattanoga, Tenn. 5 Rowland James & Co., 920 N. Delaware, Phila	Grunny, Geo. C. 185 Greenwich, N. Y
Crane Bros. Mfg Co., Chicago, Ill	Kowiand wil. & Harvey, Phila	Semple & Birge Mfg. Co., St. Louis, Mo.,
Lane & Bodiey Ch. Chechnati, C	The Passac Rolling Mill Co., Paterson, N. J., 4 Vulcan Iron and Nail Works, Chattanooga, Tenn., 6 U.S. Iron and Tin Plate Co., Pittahurch, Pa	Moore arms Cor 18th and Buttonwood, Chila
Engineers, Machiuista, etc. Hensnall James, 1956 Beacn, Phila	Was n Car and Foundry Co., Chattanooga, Tenn 6 Zug & Co., Pittsburgh, Pa 4	Rubber Buck ets. Corey A. L., Ypsilanti, Mich
burg. Tenn Caloric Kngine Co., 57 Lewis, N. Y 26	Wood W. D. & Co., Pittaburgh, Pa	Stanley guie and Level Co., 30 Chambers 5: 49 Stephens & Co., Riverton, Conn
Brown Caloric Engine Co., 57 Lewis, N. Y	Snoenberger & Co., Pittsburgn, Pa. Taylor & Bogris, Cleveland, O	Sand and Emery Paper. Makerson Beeder, Adamson & Co., 730 Market, Phila
Fitchburg Steam Engine Co., Fitchburg, Mass 35	Ironware. Lalance & Grosjeau Mfg. Co., 🕫 Beekman, N. Y 7	Enterprise Mfg, to., Philadelphia

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	Lovegrove & Co., Philadelphia, Pa. Pavne B. W. & Sons. Corning, N. Y. Shaplev & Wells, Binghamton, N. Y. Twiss Nelson W., New Haven, Conn.	19	Lanter Dietz
	Engravers, Collins Geo. B., 83 Reade, N. Y. Strobel & Weisbrodt, Cincinnati, O.	8	Lathe North
E.	Faucets, Brass, Makers of, McNab & Harlin Mfz. Co. 56 John, N. Y. Faucets, Self-Masurang Makers of, Enterprise Mfg. Co. of Pa., Phils, and N. Y.	6	Donald Johnso
20	Davis J. B. Hartford, Conn.	19	Shepar Lawn Chadbe
93	Bacon, Chas N. Windhester Mass	.	Lena F Bavioy
33	Carr J. & Riley 82 John, N. Y Fisaer Joseph S., 411 Commerce, Phila	21	Levels Disstor Locks.
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4	American File Co., Pawtucket, R. I. Augurn File Works, 59 Unambers, N. Y. Barnett G. & H., Al and 48 Richmond, Phila.	8 8 8	Union Yate L
15 N 4	Disaton Henry & Sons, Phila. Draper C. F. & Co., Sing Sing, N. Y Everhart James M., Scrantov, Pa. 4 Beller & Bere.	8 0	Pittabu Pratt a
034	Johnson & Bro., I Commercial, Newark, N. J McCaffrey & Bro., 172 and 1731 N. 4th. Phys.	8 × 8	Sellers The Bt Wetner
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6	Brooklyn Clay Retort and Fire Brick Works, Van Dyke, St., Brooklyn N. Y Evens & Howard, St. Louis, Mo.	7	Blaisde Davis
22	Gardner, Stuart & Co., Pittsburgh Hall A. & Sons, Perth Ambov, N. J	7 7	Frande Prentis
5	Reisecher B.c. son. 58 Goerek, N. Y	77	Hamme Nallete N. Y. H
4	Valentine M. D. & Bro., Woodbridge, N. J. J. Wordson John R. Perth Amboy, N. J. Weoer Adam, 638 E. 15th, N. Y. J.	7 1	Pyrolu
2	Faik L., 105th, N. Y.	D 1 1	Hoasni Eddy G Heat C Murray
6	Flint and Emery Paper and Clets. Backer. Adamson & Co. 750 Market, Phils	3 0	Crane (
7	Burbank B., Evanaville Ind	,	Pheips,
5 5	The American Machine Co., Philadelphia		Quincy Sellew Letal
3	Keystone Portable Forge Co., Philadelphia	19	Hogen letalle Britton
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5	Richmond & Potes 110 S. Pounth Thus.	10	letal F Brass G lica.
5	Cary & Moen, 234 W. 29th, N. Y.	. 10	The Che liners' James
6	Lefterta Marchall Jr. 90 Dockman av w	1"	linera Hoskin linera
6	Grain Cradles. Grant Fan Mill and Cradle Co., Melrose, Rensselaer Co., N. Y.	1.	Elbers. fodets. Burrow
	Grindstones. Cooper & Holle, Brooklyn, N. Y. Cooper & Holle, Brooklyn, N. Y. Wood, H. S. & Co., 3s West, N. Y. 38 Wood Walter R., 283 and 285 Front, N. Y. 38 Worthington & Sons, North Autherst, O. 38 Guns, &c.	1	Ebernat Ionidia Aikin a
3	Guns. &c	19	louse ? Dietz R. Olive K
1	Guppowder, Makers of, Kneeland F L. (Dupont) 70 Wall, N. Y	IN	Ripley lowing
	Biglin Philip S., I'd Chambers, N. Y 13 Gransm & Haines, 113 Chambers, N. Y 34 Satemer, J. 34	N	Aurora Senoent
	Samuel S. L., 57 Cedar, N. Y	N	Zug & Coyne &
	Hardware Dealers. Brower John 1. & Son, 288 Greenwich, N. 1	N	tesel i Hartma Jackson
	Windmuller Louis & Roelker, 20 Reade N. Y. 20 Sunpswder, Makers of, Kneeland F. L. Duponu, 70 Wall, N. Y. 32 Laftin & Rand Powder Co. 26 Murray, N. Y. 34 Laftin & Rand Powder Co. 26 Murray, N. Y. 34 Higher Philos, 10 Chambers, N. Y. 35 Salonous & Haines, 13 Chambers, N. Y. 35 Salonous & Haines, 13 Chambers, N. Y. 35 Salonous & Haines, 13 Chambers, N. Y. 35 Salonous & Waller, N. Y. 35 Hennis & Co., 35 Reade, N. Y. 31 Walbridge CB, & Co., 35 Reade, N. Y. 31 Hardware Da & Co., 35 Liova, Supplee & Walton, 62 Market, Phila, 24 Quackenousa, Townsend & Co., 39 Reade, N. Y. 34 Shepara Sidney & Co., Buffalo N. Y. 35 Shepara Sidney & Co., Buffalo N. Y. 35 Hardware Importers.	N	Colt A. Zucker
	Boker Hermann & Co., 101 Duane, N. Y	N	Many F
	Shepara Sidney & Co., Buffalo N. Y. 33 Hardware Importers. Boker Hermann & Co., 101 Duane, N. Y. 33 Klug, Stiker & Co., 505 Broadway, N. Y. 11 Van Wart, son & Co., 134 and 136 Duane, N. Y. 11 Windmulier Louis & Roelker 20 Reade N. Y. 20 Hardware Viasumincturers. Advices Spiral Spiral Spiral Spiral Co., 82 Beekman, N. Y. 40 Company of the Spiral Spiral Spiral Co., 82 Beekman, N. Y. 40 Company of the Spiral Spiral Spiral Co., 82 Beekman, N. Y. 40 Lloyd, Supplee & Walton, Co., 107 Chambers, N. Y. 34 Hart, Bliven & Mead Mfs. Co., 107 Chambers, N. Y. 34 Hart, Bliven & Mead Mfs. Co., 107 Chambers, N. Y. 34 Hart & Co., Supplee & Walton, Co., 107 Chambers, N. Y. 34 Lloyd, Supplee & Walton, Co., 107 Chambers, N. Y. 35 Lloyd, Supplee & Walton, Co., 107 Chambers, N. Y. 35 Platt & Co., Buffalo, N. Y. Chambers, N. Y. 36 Pratt & Co., Buffalo, N. Y. 50 Sedgwick Mfg. Co., New York Stanley W. riks, New Bitain, Con, N. 35 Stanley W. riks, New Bitain, Con, N. 35 Van Wagoner & Williams & Beekman, N. Y. 40 Hardware Specialties. Grant & Co., Newark, N. J. 41 Hardware Specialties. Grant & Co., Newark, N. J. 41 Hardware Specialties.	N	orway Rowland ote Bre Gallauge
	Enterprise Mfg. Co., Phila	N	Gark Be
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	Sedgwick Mfg. Co., Poughkeensie, N. Y 13 Stanley W. rks, New Beltain, Conn. Union Mfg. Co. 90 Champers, N. Y 38		Standare Sternber Union N
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This machine presents all the advantages of a light and durable LAWN MOWER, and we believe has good qualities which cannot fail to be appreciated. It is the lightest machine in use, and all that is necessary to satisfy our customers of its superiority is to place it in competition with any other machine in the town in which they may Every machine warranted to work as represented.

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VIDTH OF CUTTER.			DESCRIPTION.		Pric
12 inch.	8 inch d	riving wheels,	weight 331 lbs.	Can be used by a lad.	Each, \$18.
14 "	8 "	46 64	" 343 "	" " lady.	" 20.
16 "	8 4	44 46	" 363 "	One man size.	" 22.
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LLOYD, SUPPLEE & WALTON.

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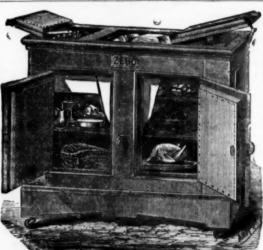
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Specialties in Hardware and Light Metallic Goods generally.

SPECIAL LOCK COMBINATIONS. BRIDGEPORT, CONN. P. O. Lock Box No. 105.



ZERO" Refrigerator.

Centennial ward, 1876, 35,000 in use. The best food and Ice keeper in the world. With Water, Wine and Milk Gooler.

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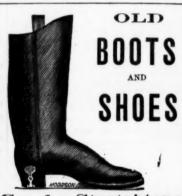
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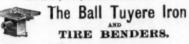
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New York Wholesale Prices, March 27, 1878.

HARDWARE.
A nviis. A American
Armitage's Mouse Hole gold 10 & 10 kg Wilkinson's \$\psi\$ B gold 15 & 10 kg Wilkinson's \$\psi\$ B gold 15 & 10 kg Wilkinson's \$\psi\$ B gold 10 kg Wilkinson's \$\psi\$ B gol
Augers and Bits. Conn. Valley Mig. Co Douglas: Mf. Co
Reecher (French, Swift & Co). dis 50 66 Griswold
Notice mig. Co. Kasson's Patent. Cook's, Douglass Mfg. Co. dis 50&5 Cook's, Ives dis 44&75
Snell life. Co. dis 30&10 Jennings' Bits dis toktro Ives' "Jennings" Bits dis 25
Lewis' Single Twist Bits. dis 10 Andrews Bits. dis 50 Griswold's Patent Bits dis 30
Expansive Bits, Clark's, small, \$65; large, \$20. dis 20; "Ives \$20-dis 32!s' Blake's \$20-dis 40;
836 dis 25 Hollow Augers Ives dis 25 Hollow Augers Ives dis 40 dis 40 f
Bonney's Adjust., \(\pi\) dos \(\pi_4\) —dis 25&100 Stearns' Adjust., \(\pi\) dos \(\pi_5\) = \(\pi_6\) is 25&100 Ives' Expansiveeach \(\pi_4\) = 0—dis 405
Gimlet B(ts
Double Crt Gimlet Fits Shepardson's
Douglass' dis 40&10 3 10 10 10 10 10 10 10 10 10 10 10 10 10
Watrous Ship Augers. dis 15 Watrous Ship Augers. dis 15 Awi Hafts.
Peg, 3.50 \$ dis 3.56.10 \$ Patent Sewing, Short. \$1.00 \$ doz—dis 3.56.10 \$ Patent Sewing, Short. \$1.00 \$ doz—dis 3.56.10 \$ 1.00 \$ doz—dis 3.50 \$ doz—dis 3.56.10 \$ 1.00 \$ doz—dis 3.56.10 \$ doz—dis 3.56.10 \$ 1.00 \$ doz—dis 3.56.10 \$ doz—dis 3.50 \$ d
" Peg, Plain Top \$10.00 \(\psi\) gross—dis 35&10 \(\psi\) " Leather Top 12.00 " dis 35&10 \(\psi\) Awls, Brad Sets, &c.
wis Sewing, Common # gross \$1.35—dis 25 % sewing, Best. # gross 1.40—dis 10 % Shouldered Peg. # gross 2.25—dis 15 %
" Fatest Fee Fate
" Socket Scratch
Gimlet Bits Diamond \$7.50 ¥ gross dis 25 bee dis 26 dis 28 bee dis 26 dis 28 dis 26 dis
Axle Grense,—Frazer's. Dalances. Union
Hand, Light Brass. dis. 75 % dis. 40 % 5 % 10 % 10 % 10 % 10 % 10 % 10 % 10
" Silver Chime dis 20&10 % " Swiss dis 25 % " Globe (Cone's Patent) dis 25 %
'Gong, Abbe's. dis 20&10 2 'Yankee. dis 35&10 2 'Barton's. dis 40&2 2
Crank, Taylor's dis 25x10 5 "Brook's dis 50 5 "Cone's dis 10 5 "Connel's dis 50 x 10 5 "Connel's dis 50 x 10 5 "Lever, Sargent's dis 50 x 10 5
Lever, Sargent's Taylor's Bronze or Plated Lever dls 5ck 10 5 Japanned Lever dls 25k 10 5 Hart, Bliven & Mead Mfg. Co. dls 9ck 10 62 5 Pull, dls 5ck 10 5
" Brook'sdis 50 %
" Western dis 25% io % Call. dis 25% Cow, Common Wrought dis 20% io %
Call
\$12.00 10.00 0.00 8.00 6.00 5.00 3.50 2.50 5.00, dis 50 %
" Yaw's Genúine
Moulders' dis 20 % Hand Bellows dis 20 %
Moulders' dis 25
Washburn's Patent # gross \$14.00, dis 30 % Merriman's new list net Hind Staples.
Washourn's Patent Fire Fir
Blocks.—Burr & Co
B. W.)
Heilte. Cast Iron Barrel, Shutter, &c
Bush's Lever Bolts. Gis 40, 10&10 5 Spring Butts (Humason & Beckley Mfg. Co.) dis 40&10 5 Wrought Iron Barrel. dis 50, 10&10 5 Wrought Iron Barrel. dis 50, 10&10 5
"Shutter (Stanley's list,
Spring Butts (Humason & Beckley Mig. Co.) dis 40% to \$\times Wrought Iron Barrel
Carriage and Tire, Common
" Shelton's (old list) die 6rêr s
Tire, Am. Screw Co. dis 70kto 5 "Bay State" dis 70kto 5 Star (Phils). dis 60ktog/co&20 5 Union Nut Company dis 70 5 Stove—American Screw Co.'s. dis 50ktog/co "R. B. & W. dis co&10 5 Union Nut Co. dis 60 6 Linion Nu
Stove - American Screw Co.'s
Plow dis 50 5
Aborit American Daniel American
First quality, no Augers
With Augers
Union Nut Co. dis coato 5 Hotehkias low list dis 15 Humason, Beckley & Co. 5 Humason, Beckley & Co. 5 dis 60 5 Sargent & Co. 6 sargent & Co. 6 dis 60 5
Braces, Barter's ratent dis 4065 % O. S. Backus dis 50610 % Wilson Mrk. Co dis 10 %
Sportord's Patent dis sock 5 % Moble's Patent dis 40% 5 % 19vg "Ct atennial" dis 50 g
Hrackets.—Shelf (Sargent's). distokto @ 60&tokto Swing (T. & S. Mfg. Co.)
Bull Rings.—Union Nut Co. dis Società Sargent's. dis 695% to \$
Snell's, no Augers
Cast Brassdis 30 # 40 %
Past Joint, Narrow
DRILLED AND WIRED. Glis 50&10 5
Parliament Hulls
Mayer's Hinges
Union Mig. Co. & Famely Butta-
with Silvered Acorns. dis 500 10 5
Yast Joint Narrowdis 40810 5
Mroad dis 300 5

vew york who	diesale Prices,
Loose Pin, Wrt. Am, Spiral Spring Butt Co., Japanned. dis 24 Fancy. dis 16 Sabin Mfg. Co., Double Acting dis 25 Union Spring Hinge Co. dis 26 Union Spring Hinges. dis 26 Blind Butts, Parker. dis 26 Seymour. dis 26 Seymour. dis 26 Lull & Porter dis 26 Nicholson dis 46 Huffer dis 26 Huffer dis 26 Clark's, Nos. 1, 3, 5, 40 and 50. dis 76 Sargent's. Gist 76 Butchers' Clear Verys. Gist 76 Butchers' Clear	National # doz \$4.50, dis 333/5 Schofield # doz \$3
Sabin Mfg. Co., Double Acting dis 3: Union Spring Hinge Co. dis 2:	Mill E. Buckets, heavy, 5 to 10 inches (Duc's Improve \$\frac{\pi}{2}\$ doz \$\frac{\pi}{2}\$, co, 6\frac{\pi}{2}\$ for \$\frac{\pi}{2}\$ (oz \$\frac{\pi}{2}\$), co, 6\frac{\pi}{2}\$ (oz \$\pi)\$ (oz \$\pi)\$) (oz \$\pi)\$ (oz \$\pi)\$ (oz \$\pi)\$) (oz \$\pi)\$ (oz \$\pi)\$ (oz \$\pi)\$) (oz \$\pi)\$ (oz \$\pi)\$) (oz \$\pi)\$ (oz \$\pi)\$) (oz \$\pi)\$ (oz \$\pi)\$) (oz \$\p
d Blind Butts, Parker. dis 70 Palmer dis 40 Seymour dis 60 kg	Emery, to in the state of the s
Shepard	Washington Mills—Regular Nos. P B 46 dis 10 Flour and FF. P B 46 dis 10 Flour Nos. P B 46 dis 10 Flour Nos. P B 8 B 8 B 8 B 8 B 8 B 8 B 8 B 8 B 8 B
Huffer. dis 40&1c Garretson. dis 6c Clark's, Nos. 1, 3, 4, 40 and 50. dis 7c	Wellington Mills, Grain. # h not n Flour # h &c n Hampden Emery Grain. 5c n
"Garretson dis 6c Clark's, Nos. 1, 3, 5, 40 and 50. dis 5c Clark's, Nos. 1, 3, 5, 40 and 50. dis 7c Sargent's. dis 2c Sa	Emery. Genuine Chester—Regular Nos. Flour and FF
Bradley's dis 25 Beatty's dis 25 Beatty's dis 25	5 Sauce Pans. dis 30 @ 35 6 Glue Kettles. dis 30 @ 35 7 Tinned Sauce Pans. dis 30 @ 35
816.50 19.00 21.50 24.00 27.00 30.00 33.50 36.50 Hare Mrg. Co	Escutcheons, Door Lock Same discounts as Door Lock Brass Thread dis 60&10 Wood dis 25
\$20.00 20.00 20.50 33.00 37.00 41 0 45.00 CMn Openers. C Messenger's Comet. 36 doz \$2.00 dis 20	Vood dis 25 Faucets. dis 26 Fenn's. dis 50
American. # dos \$2.24, dis 60 Lyman's # doz \$3.75, dis 20 Poole # doz \$3.75, dis 20	Fenn's dis so Fenn's Cork Stops dis 49 Star dis 25 Sta
No. 4, French	Cork Lined dis 6,6410 Cork Lined dis 6,6410 Enterprise (Self Measuring) dos, \$36,00, dis 20 Fellos Plates dis 6,00, dis 20 Fellos Plates dis 6,00, dis 20
₩ dos \$2.00 2.25 2.40 dls 33% Eureka ₩ dos \$2.50, dls 10 Sardine Scissors ₩ dos \$7.00, dls 45	Cork Lined dissociation of the core of the
Star	Arcade \$5.00 to £ currency, dis 30 C & H. Barnett dis 2. Nicholson List) dis 25 Nicholson List) dis 25
E. B. 1-10 Ground	Heller & Bros
6 Colt's 1-10	J. & Kiley Carr.
Colt's. 1-108, 80c gol Cartridges.—Metallic. dis 50&7 Cards.—Horse and Curry. dis 245&7	Watter Spencer & Co. s "Diamond" 4.50 to £ gol Fisher's 1.55 to £ gol Moss & Gamble 4.50 to £ gol
Cotton	Hose Rasps
Wool	Boynton's Cant
Bed dis 55 Plate and Shallow Socket dis 55 Deep Socket dis 40	6 " \$2.50 each ne
Cattle Leaders. dis ro&ro Hotchkiss' Sons' dis ro&ro Humason, Heckley & Co.'s. dis 60	Improved Knox (Climax), 4-inch 2,5c each ne
Sargent's dis 60& 10& 10 Union Nut Co. dis 60& 10 Cham.	Eagle, 3%-inch Roll. 8"4,90 each ne
Trace, 0\(-1 \cdot -2 \cdot \) by the cask, \(\Price \) pair, gold, 45 \(\tilde \) 46 \(\tilde \) 46 \(\tilde \) 47 \(\tilde \) -10-2 \cdot \) by the cask, \(\Price \) pair, gold 49 \(\tilde \) 50 \(\tilde \) 49 \(\tilde \) 50 \(\tilde \) 49 \(\tilde \) 50 \	Empire. #4.00 each ne Eureka, No. 1, 7-inch Roll. 6,75 each ne "No. 2, 5-inch Roll. 5.00 each ne
German Halter Chain	Crown, 4%-in. Roll, \$2.20;6-in., \$2.50;8-in., \$3.80 each, ne Champion, 4 in., \$2.15; 6-in., \$2.50; 8-in., \$4.00 each, ne Domestic Fluter
Union Nut Co	Combined Fluter and Sad Iron # dog 15.00, dis 5 @ 10 Fluting Scissors dis 40&10
Red	"Empire" dis 20 9 Keystone Portable Forge Co
White Crayons # gross 1350 met Chisesto. D. R. Barton Tool Co. (all kinds) # dis 205 Socket Framing, Crossman # dis 65200 Socket Framing, Crossman # dis 65200 Hart Mig. Co. dis 552,3x dex 3 Hert Mig. Co. dis 552,0x dis 20 Hert Mig. Co. extra. dis 552,0x dex 3 Hert Mig. dis 552,0x d	Hay, Manure and Spading new list, dis 15, 9 Plated A I
Buck Brosnew list, dis 25 Hart Mrg. Codis 65&5&76&22 Merrilldis 60&10	Fruit and Jelly Presses, Enterprise Mg. Co
" Witherby Tool Co dis fo&to for the control of the contr	
** Buck Bros new list, dis 25 ** Hart Mfg. Co., extradis 65&5&5002 9 ** Merrill	Calcal C
" Witherby Tool Co, dis foot 15 " " Douglass' dis 70 to 15 " " Corner dis 65@70 to 15 "	
Hart Mfg. Co., extradis 5,26.c0.02.2 Merrill	Nail and Spike dis 40645 % "Bee" Gimlets F gross \$12.00, dis 45 % "Eureka " Gimlets dis 40 %
Adjustable, Gray's. dis 20	Clue Pets, Clu
Hammer'sdis 15 15 15 15 15 15 15 15	" L. F. & C.'s "Handy" dis 25 % Grindstone Fixtures. Sargent's Patent dis 70&10&10 %
" Carriage Makers', Sargent'sdis 60&10&10 5 " Cord and Tape (T. & S. Mfg. Co.)dis 30 5 Clips, Axle.	Reading Hardware Co
" Cord and Tape (T. & S. Mfg. Co.). dls 30 5 Clips, Axle. Norway or Best. dls 50 8 Superior. dls 50 8 Cockeyes. 1½ in., 28c.; 1½ incb, 33c.; 1¾ in., 37c, net Cockes. Brass Racking. dls 50 55 8 Lock and Globe. dls 5065 5 Lever Bibbs. dls 40 8 45 8 Coffee Mills. dls 40 8 45 8 Coffee Mills.	Rick Bros. dis 45k 5. H. Maydole's (new list on A. E. Bell Face). dis 15k 5. Hammonds' (new list). dis 15k
Cocks. Brass Racking	Hammonds' (new list). dis 15&5 5 Humason & Beckley Mfg. Co. dis 33\\(\frac{1}{2}\) S Cheney's Steel Face and Claw. dis 10 5
Ale and Beer dis 40 % 45 % Coffee Mills.	Verree
Ale and Beer	Hand Cutts and Leg Irons. Providence Tool Co. "Hand Cutts, \$15.00 \(\Prep \) doz \(\) dis 10 \(\)
French Steel dis 20 % The Swift (Lane Bros.) dis 25 % Company Bividers &c.	Tower's
Compasses dis 35&10 \$ Callipers dis 50&10 \$ Dividers dis 4, \$	Nos o
Bemis & Call Co.'s Compasses and Dividers . dis 35&10 % Cook's	Bronzed fron Drop Latches
Cook*	Wrought Chest dis 60&10 % Surface Chest, Sargent's list dis 60&10 %
Chas. E. Little	Lafting dis occioe dis
Corn Raives and Cutters, Bradiey's dis lo Crow Bars. Cast Steel P D oc net	" (Centennial)
Crucibles, Gautier & Co	Brad Awl. P gross \$3.75, dis 25&10 % Hickory Firmer Chisel, assorted, F gross \$5.25 large,
Curling Tongs. P doz \$6.50, dis 15 % Pinching Irons. U doz 7.50, dis 20 % Curry Combs.	Socket " assorted, 5,00 lis 40 %
Curry Comb Mfg. Co	File, assorted, # gross. 3.50 Auger, assorted, # gross. 0.00
Rubber	Patent Auger, Ives'
Cuttlery Co. (Table)	Hangers. Barn Door
White Enamel	Nos.
Dippers, Reitannia 2 dos \$2.75 @ \$4.25 net	Sterling Improved (Anti-Friction). dis 70% for Harnews Shapps, Henshaw's dis 50 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Dippers, Britannia. # doz \$3.75 @ \$4.25, net Cocos, Plain. # doz \$9.25, dis 20 % Rimmed. # doz 3.75, dis 20 % Dog Collars.	Hotelekiss' dis 10 % Andrews' dis 50 % Sargent's dis 50 %
# Rimmed.	New York Wire
Door Springs. Torrey's Rod. Gray's doz \$2.00 net	Isaiah Blooddls 15 % Shingling, Nos. 1 2 3
Johnson's Rod. # doz 3.00, net Gem (Coll)— No. 1, Large, Japanned. # doz \$3.50)	Lathing, Nos. 1 2 3. \$\frac{1}{2}\$ doz 7,50 8.00 \$\frac{8}{2}\$ Shingling, Nos. 1 2 3. \$\frac{1}{2}\$ doz 87,25 \$\frac{8}{2}\$ Sh.00 \$\frac{8}{2}\$.75 Claw, Nos. 1 2 3. \$\frac{1}{2}\$ doz 7,75 \$\frac{8}{2}\$ \$\frac{9}{2}\$ 250 Lathing, Nos. 1 2 3. \$\frac{1}{2}\$ doz 7,75 \$\frac{8}{2}\$ \$\frac{9}{2}\$ 250 Hurd's \$\frac{1}{2}\$ doz 7,75 \$\frac{8}{2}\$ \$\frac{9}{2}\$ 250 Hurd's \$\frac{1}{2}\$ \$\frac{1}{2}\$ doz 7,75 \$\frac{8}{2}\$ \$\frac{1}{2}\$ doz 7,75 \$\frac{8}{2}\$ \$\frac{1}{2}\$ doz 7,75 \$\frac{8}{2}\$ \$\frac{1}{2}\$ \$1
No. 2, median, No. 3, Small, Chairenge (Coll)— Nos. 9 7 6 Nos. 9 7 6 Nos. 9 7 6	Claw, Nos. 1 2 3 W doz 7.75 8.50 9.25 Lathing, Nos. 1 2 3 W doz 7.50 8.25 9.00 Hurd's
Coppered	Latining, Nos. 1 2 3
Premium (Coii)— Nos. 1 2 3 Japanned	Simmon's
Star (Coil)—For Cop'd, Nickel-Plated, &c., see list. No. 5, Small	Lathing, Nos. 123 dos 8.00 8.00 9.00 Broad, Nos. 1234 dos 9.00 10.00 12.00 14.00 Nos. 5678 doz 16.00 18.00 20.00 22.00 Collins'
Johnson's Rod	Collins*
Orawing Knives. Crossman's No. 1. \$18.00; No. 2, \$15.00 \$\psi\$ dos, dis 50 \$ Orawing Knives. Crossman's No. 1	D. R. Barton Tool Co. dis 20 %
Hart Mig. Co., extra	J. P. Verree & Co
Bradley's	Claw, Nos. 1 2 3 9 dos 7,50 8,00 8,50 Lathing Nos. 1 2 3 9 dos 7,00 7,50 8,00 Underhill's dis 20 %
Some Strate Color Color Color Bradley Color Color Color Bradley Color Color Bradley Color Color Breast P. S. & W.	Shingling, Nos. 1 2 3
" Wilson's	Claw, Nos. 1 2 3
HotchKiss	"Lightning" \$\psi \text{dox \$\psi_{20,\infty}\$ net
Whitney's Hand Drill dis 20 @ 25 \$ Whitney's Hand Drill dis 20 @ 25 \$ Wilson's Drill Stocks dis 20 \$ Automatic Roylog Tools	Hinges. Gate, Western
w linner's riant orin discost of Wilson's Drill Stocks. dis 105 Automatic Boring Tonis each \$2.7, dis 25 I Drill Chucks.—Danbury each \$3.0, dis 25 Rorse's Beach Fabent discost discos	Wadsworts

, , , , , , ,	maron 27, 107	_
	Wrought Strap and T, list Dec. 2c, '77 dis 6cd:1236 Providence Plate { 6 to 10 in. 110 % in { 6.dt:1236 } Providence Plate { 6 to 10 in. 110 % in { 6.dt:1236 } Screw Hook and Strap 12 to 10 in., 940 Heavy Welded Hook { 8 to 12 in., 110 c} Heavy Welded Hook { 8 to 12 in., 11 c} \$ to 12 in., 11 c} \$ to 1 in., 11 c}	% Ai
ets. ht, 5 to 10 inches, (Duc's Improved ¥ 700 \$23.00 @ \$54.00, net avy, 5 to 10 inches (Duc's Improved ¥ doz \$5.50 @ \$10.20, net	Screw Hook and Strap 8, 10, 12 lin., 110 dis 40% 10 14 to 36 in., 9 \(\frac{1}{2} \) dis 40% 10 Heavy Welded Hook 8 to 12 in., 11 0 dis 40% 10 14 in. & up. 9 \(\frac{1}{2} \) dis 30	% Ci
Regular Nos P m 6c dis 1c 5	Bcrew Hook and Eye \$\\ \frac{34}{56} \text{ to 1 in., 11 c}{\text{11 c}} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	Se Be Be De
irain	Solid Shank, C. S.	% D. % Sa OI % Pl
Tinned Ware. dis 40 @ 50 ¶		% X
Hegular Nos W B x x	Hoes. # doz \$5.25, dls 15	ANAMA
Same discounts as Door Locks	Hooks. Bird Cage, Sargent's list. dis 60&10&10 Cotton. dis 50	% Bu
dia so #	Belt. dis 70 Bench—Hotchkiss' \$5.00 \(\psi \) doz. dis 10 "Weston's, No. 1, \$10,00; No. 2, \$0.00 \(\psi \) doz dis 25	Hi Hi
118 40 5 Oleum dis 15% 105 5 High list dis 20% 10 5 High list dis 20% 10 5 High list dis 65% 10 5 assuring) # dos. \$5500, dis 20 5 # h 150, dis 50 8	" McGill's, \$3.00 % doz	Eu Ru P.
# B 15c, dis 50 %	Hookes Fat. Soid C. S. Pianters dis 20x10@ 30 Hookes. Scryvill Pattern. dis 20x10@ 30 Cotton (Humason & Beckley Mfg. Co.) dis 50 Bett dis 60x12x dis 70 Bench.—Hotchkiss' \$5.00 ¥ doz dis 10 Weston's No.1, \$10.00; No. 2, \$5.00 ¥ doz dis 12 " Mestin's \$5.00 ¥ doz dis 10 Skinner's, \$5.20 ₽ doz dis 20 Clothes Lise. Hart's list dis 60x10x \$4.00 Clothes Lise. Hart's list dis 60x10x \$4.00 Celling Hart's list dis 50x10x \$4.00 Harness. & dis 20x10x \$4.00 Harness. & dis 50x10x \$4.00 Hart sits dis 60x10x \$4.00 Hart's list dis 60x10x \$4.00 Hart'	Sta Sta
	Coat and Hat, Hart's list. dis 65% \$\delta 10 \\ Sargent's list. dis 65% \$\delta 10 \\ Reading. dis 45% 10 \\ 10 \text{Reading.} \text{dis 45% 10 \\ 10 \text{Reading.} dis 45% 10 \\ 10 \text{dis 45% 10 \\\ 10 \text{dis	Sta Joi
\$5.00 to £ currency, dis 15 @ 20 % e File Co\$5.00 to £ cur., dis 25 % e File Co\$4.50 to £ gold	Tassel (T. & S. Mig. Co.)	Po Sa
#4.50 fo E gold #5.00 #5 to E gold #5.00 #5.50 E gold \$5.00 #5.50 E gold 0.'s "Diamond" 450 fo E gold 0.'s "Diamond" 450 fo E gold 450 fo E gold 450 fo E gold 450 fo E gold 60 #5.50 f	Wire screw Hooks and Eyes	Va 6 Le
eter A Frasse & Co.) 4.50 to £ gold orse Rasps. 4.75 to £ gold	Brass dis 60&10&10 5	Ba "S
)	" Finished, Polished or blued " 21c 28c 25c 25c 24c 23c	Dis
	Cortland 29c 26c 24c 23c 22c 21c \ dis 14 Pt'd & Blued . 31c 28c 26c 25c 24c 23c \ @ 25 5 Globe (New list) . \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Ho Jaj Bra
4.75 each net max), 4-inch 2.55 each net 6 3.15 each net 8 4.90 each net	North Western Fini'h'd 26 23 21 20 19 18c net " "Plain 25 22 20 19 18 17c net National. Pointed and	Jai
816.50 ¥ doz, net	Polished, Pat. Fin 25 23 22 21 200 net Putnam Hammer, P't'd 26 23 21 20 19 18c net Vulcan P't'd & Blued 26 23 21 20 19 18c net Harree ShaesBurden	Do
Roll 5.00 each net 4.20; 6-in., \$2.63; 8-in., \$3.80 each, net 5; 6-in., \$2.50; 8-in., \$4.00 each, net	R. I. Horse Shoe Co., Perkins' Improved Light, Medium and Heavy	Un
1. Sad Iron# dos 15.00, dis 10 % dos 15.00, dis 10 % dis 40&10 %	The Boston Horse Shoe.	Bel Spr
orge Codis 20 %		R
adingnew list, dis 15 %	Wood Head Picks, Sargent's	Bar
., new list	Horse Nails	Mal
25 4.75 5.25 0.00 7.00 8.00 9.00	Parameters and an anomaly an anomaly and an anomaly an anomaly and an anomaly anomaly and anomaly and an anomaly and an anomaly and an anomaly anomaly and anomaly anomaly and anomaly anomaly and anomaly ano	1
dis 45&10 % dis 35 % dis 10 % dis 10 %	Hav and Straw "Wadaworth's" doz \$1.50, dis 15 %	Bad Bad Eva
dis 40645 5 F gross \$12.00, dis 45 5 Gross \$12.00, dis 45 5 Gross \$12.00 dis 45 5 Gross \$15 95 5	Knobs, and rockers see Custery Knobs, and so to gross and so gros	Hui Cha Tor
'dis 50 \$dis 40&10 \$ 'dis 40&10 \$	Blastic Knd. No. 8	Sau Iron In b
d	Door, Mineral	Cop
Bres. dis 70&10&10 % O	Picture (T. & S. Mfg. Co.) dis 50 % Ladies. dis 526 to % Sargent's dis 506 to % Reading dis 150 to % dis 150 to % Lanterns. dis 24 to % Lanterns.	Dot:
	" Monroe's Patent doz \$4.00, dis 20 %	R Bar Nov
ist on A. E. Bell Face)	Peerless No 5, \$\Phi\$ doz \$11.75, dis 10&10 \$\pi\$ Brady's Patent dis 10&10 \$\pi\$	Man
Leg Irons.	###	
Leg Irons, \$25 \$ doz } dis a5 \$	Yankee	Sisa
2 3 4 150 dis 65&10 % atches P doz \$0.85 @ \$1.00 net	Porcelain Lined.	Char Stan
per dos #5.00, dis 05x10x10 x 1	Control Control of the Control of th	Step Will Stea
	Sil. Lake Chalk Nos. 0, 1, 2, 3, \$4.00, \$6.50, \$7.00 \$3.7.50 dis 20 5 Mason's Linen dis 20 5 Mire Clothes Gaid each 35 60 430 net Locks and Latches. Labinet-Gaylord dis 25 2 5 Eagle dis 25 2 Bridgeport Lock Co dis 25 5 Langstroch & Crane's List Jan. 1, 77.	Salf-
p)	Uabinet—Gaylord	Com
i, assorted, # gross \$5.25 large, 6.50	Trunk	66
Co. dis 20	Trunk	New Com Pate
988	F. Many's "Extension Cylinder"\$10.50 \(\pi\) doz, net	Silve
	Brainford	Clark Ferg Norv
dis 40 % dis 50 % dis 50 % dis 50 % dis 50 % dis 70 % to % dis 7	Padlocks—Russell & Erwin Mallory, Wheeler & Co	Wall New Ham Nort
1% changed to \$14.00, dis 50 % 14.00, dis 50&10 %	## American Lock Mfg. Co. dis 33\\\ 20\\ Romer's dis 20\\\ \\ ## Vulcan Hardware Co. dis 20\\\ New York Lock Co. dis 20\\\	Sa Sa Miles
nti-Friction)	## American Lock Mfg. Co	Perry Draw Ente Silve
dis 60 %	Mallets.—Hickory and Lignum vitredis to % Ment Cutters. Dixon's (P. S. & W. Nos. 1	Spea: Disst
# dox \$7.25 \$8.00 \$8.75 # dox 7.75 8.50 9.25 # dox 7.50 8.00 8.50 dis 25 %	# doz \$14.00 17.00 10.0030.00—dls 25 % # lies' Challenge	H. W
# doz 7.75 8.50 9.25 # doz 7.50 8.25 9.00	Each. \$3.00 4.00 5.00 11.00 13.00 30.00—dis 20&10 % Woodruff's (P. S. & W.)Nos. 100 15.00 15.00—dis 20&10 % dos\$15.00 18.00—dis 20&10 %	Е. М.
# dox #8.00 #8 50 #0.00 10.0	Draw CutNos. 11 12 13 Draw CutNos. 5 2 6 8 10 Each\$50.00 75.00 80.00 225.00 400.00—dis 20 %	Whee
3 # dos \$7.50 \$8.00 \$8.50 \$0.00 3 # dos 0.00 0.50 10.00 3 # dos 0.00 10.00 12.00 14.00	Ment Cutters. Ment Cutters	Livin
5 # doz 16.00 18.00 20.00 22.00 18.00 1		Whit Red. Saw
9 400		Saw l Say Boyn Stilin
2 dos es as dis 5 %	niis	Comr
	Table (Humason & Beckley Mfg. Co.)dis 33½ %	Nash Hami
₩ dos 12.00 11.00 13.00 dis 40 %	Best	Sen
	Une and Tin dis 45 % irass and Copper dis 40 % illustrates and Copper distance and Cop	Union Turni Brow
\$\psi \text{dor 10.50} \text{ 18.00 19.50} \text{ 19.50} \text{ 19.50} \text{ 19.50} \text{ 19.50} \text{ 19.50}	rior's Patent or "Paragon"dis 40 %	Fairb Howe Chati
	Faber's Carpenters'dis 20 %	Unive Favor Scale
₩ dos \$5.00, dis 50 %	Picture Nails and Knous, trass Head. Sargent's List	Box, i
dis 60&10 \$	** T. & S. Mfg. Co	Ship (

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10	Plaiting Machines.	* 55 %
30 ne	First Quality. dis 35@4c Second "dis 55@55&10	* * * *
15	Defiance Adjustable, new list. dis 25&10 D. R. Barton Tool Co	RWWWW
30 40 30	Plane Irons, Butcher's	d
35	Auburn Tool Co.'s	222
35 90 25	D. R. Barton Tool Co	MMM
50	** Sandusky Tool Co. dis to&to Pliers and Nippers. **Button's Patent Hull's Patent Nippers, No. 1, \$15; No. 2, \$21 \(\) doz, dis 23/5 Hull's Patent Nippers, No. 1, \$15; No. 2, \$21 \(\) doz, dis 23/5 Hunsson & Beckley Mig. Co. dis 33/5 Gas Pilers. dis 30/5 Eureka Pilers and Nippers. dis 25 Eureka Pilers and Nippers. dis 25 Eurska Pilers and Nippers. dis 30 Europe di	W %
70	Hull's Patent Nippers, No. 1, \$15; No. 2, \$21 \(\) doz, dis 25 Humason & Beckley Mfg. Co	78 78
010	Eureka Pliers and Nippers	MMM
0	P. S. & W. Cast Steel. dis 50 Plumbs and Levels. dis 60&10 Plumbs and Levels. dis 60&10 Stanley R. & L. Co.'s Pat. Adjustable. dis 60&10 Chanit's. Non-Adjustable. dis 60&10	N. N. N
0	" "Non-Adjustabledis 60&10 Chapin'sdis 60&10 Standard Rule Co.'s New Adjustabledis 60&10	AMMA
0	Non-Adjustabledis fodto	N 24 24
0	Post Hole and Tree Augers	%
0 5	{ Fietcher Fost Hole Augers ♥ doz 36.00, dis 20 { Vaughan's Post Hole— { 6 in. \$23.60; 7, 8 and 9 in. \$25 per doz	%
0 9		15
dis	Bay State. # doz \$12.00 ne "Saratoga" Peeler and Silcer. # doz 9.00 ne Pruning Hooks. Disston's Combined Pruning Hook and Saw	t
05	"Pruning Hook" 11.50, dis 20	K
5 %	Hot House and Tackie. # 405 \$0.50, 418 202 10 Jap'd Screw dis 66% 20	K K
iei iei	Jap'd Side	5 5 5 5
iet iet iet	Pumps. Douglas Cistern, etc new list dis S. & F new list dis	6
236	" " Rains dis 20 9	6
et	Punches, Belt or Drive	
et	Bemis'dis 20 1	-
***	Railing Door, Wrought Brass	
et	Rukes. Cast Steel.	
et	#5,00 5.75 6,50 7.25 8.00	
et %	Raise Rais	
MNA	Badger's Emerson. dis 20 % Badger's (not Emerson). dis 25 % Grans dis 20 % di	
ry &	Imitation Emerson	
XXX	Torrey's	
s.	Saunder's dis 10 g 1, 5 Rivets Iron and Tinned dis 40 g In bulk, new liet of Jan. 10, 1878 dis 30 g Copper Rivets and Burs dis 30 g Copper Rivets and Burs dis 30 g Rivet Sets dis 30 g Rods dis 40 g Rods dis 40 g Rods dis 40 g Rods dis 30 g	
MMM	NOS. 7 5 9 10 11 12 13 14 15 H b. 490 500 520 540 560 480 600 650 700 Rivet Sets. dis 40 %	
NW 1	Doty's Revolving	
24.24	"American Patent	
et %%	Novelty dis to * Acme (Anti-Friction). dis 5 % Rope. Manufacturers' List, Jan. 2, 1878	
MMM	** 34 linch @ b 13 c ** ** Tar'd Rope	
36.36	" Lath Yarn	
NN t	" Hay Rope. % and 5-16 inch % b 11 %c " Hay Rope. % b 11 c	
K	Chapin's dis dis focto \$ Stanley dis dis 50cto \$ Standard dis dis 50cto \$	
NAM	Stair dis 50	
× × ×	Said I rons. From 4 to 10 lbs	
5	Tailors † doz \$15.00 net Enterprise Patent Cold Handle	
XXX	Bacder & Adamson's Flint, oo to 1½ \$4.25 \(\tilde{\psi} \) ream " 2,2½ & 3. 4.75 \(\tilde{\psi} \) ream " 4 Assorted 4.25 \(\tilde{\psi} \) ream dis	
200	Stearn's. Sind Irons. Self-Heating. From 4 to 10 lbs. Self-Heating. Flow \$80.00 net Enterprise Fatent Cold Handle Combined Fluter and Sad Iron., per doz \$1,000 net Enterprise Fatent Cold Handle Combined Fluter and Sad Iron., per doz \$1,000 dis 15 Sand Fapers. Sand Papers. Sand Papers. Self-Heating. Self-He	
31 24 24	Sask Cord.	
100	" White Cotton. \$\P\$ b 55c net Drab Cotton. \$\P\$ b 65c net Cotton.	
200	Raw Hide	
200	Walker's	
10100	Walker's dis 10 % New England dis 20 % Hammond's Window Springs dis 25 % Northup Window Springs dis 25 % Northup Window Springs 49.00 per gross, dis 10 % Sash Weights, -Solid Eyes 20 mm Sausage Stuffers or Filters 20 doz \$20, dis 30 % Perry 40 doz \$0, No. 1, \$15; No. 0, \$27, dis 30 % Perry 40 doz \$0, No. 1, \$15; No. 0, \$27, dis 30 % Draw Cut No. 4 each \$30.00 dis 20 % Enterprise Mfg. Co. dis 20 % Silver's dis 25 %	
	Miles	
2000	Silver's dis 25 %	
	Saws. \$3.50 to £ gold \$9.50 to £ gold \$9	
	Hand, Panel, Rip, &c. dis 20 % H. W. Peace's Circulars. dis 25 % Mill, Gang and Mulay. dis 4 %	
1	Cross Cut. dis 20.5	
1	"Billet Webs	
1	Livingston's Butcher and Kitchendis 20 @ 25 %	
1	Nos 101 102 103 104 105 Per doz. \$10.00 8.50 10.00 7.50 6.25 net Saw Frames. White, Vermont	
١	Red. Polished and Varnished dog \$2.50, dis 15 %	
1	Saw Nets. dis 40 %	
1	Common Lever	
1	" Imitation	
	" Hart's Patent Lever	
	Scales	
	Howe's	
ľ	Scale Beams, new list	
	# dos 6.00 dis 10 \$ dis 20 \$2.00 dis 20 \$2	
ø'	(1 /Providence Tool Co	

2	_
Screw Drivers, dis 400 5	Well Wheels. Revised list. dis 60&10 \$\frac{8}{2}\$ \text{Wire.} Bruss and Copper List of Jan. 1878 dis 10 \$\frac{8}{2}\$ Brisk and Annealed Nos. 0 of 18. dis 15 \$\frac{9}{2}\$ ere 60 \$\frac{5}{2}\$ Nos. 10 feet 50, 18 to 16 \$\frac{5}{2}\$ ere 60 \$\frac{5}{2}\$ Nos. 20 feet 50, 18 to 25 \$\frac{5}{2}\$ ere 50 \$\frac{5}{2}\$ Coppered Nos. 0 of 6. \$\frac{3}{2}\$ be 10. \$\frac{5}{2}\$ for 60 \$\frac{5}{2}\$ \$\frac{5}{2}\$ ere 50 \$\frac{5}{2}\$ Nos. 7 to 6. \$\frac{3}{2}\$ be 10. \$\frac{3}{2}\$ for 63 \$\frac{5}{2}\$ Tinned, Nos. 0 to 18. dis 45 \$\frac{5}{2}\$ de 47 \$\frac{5}{2}\$ cast Steel dis 26 \$\frac{5}{2}\$ \$\frac{5}{2}\$ Tinned Broom Wire, Nos. 18 to 25. dis 475 \$\frac{5}{2}\$ for 50 \$\frac{5}{2}\$ Annealed ere Mire, Nos. 18 to 25. dis 475 \$\frac{5}{2}\$ for 50 \$\frac{5}{2}\$ Annealed ere 10. \$\frac{5}{2}\$ so 10. \$\frac{5}{2}\$ dis 50 \$\frac{5}{2}\$ di
Buck Bros	Bright and Annealed
Sargent & Co.'s dis 60&10	Onivariated Nos. o to 6 Nos. o to 18, till \$256 (6: \$5.50 Nos. o to 6 Nos. o to 6 Nos. o to 6 Nos. o to 18, till \$1.00 Nos. o to 18, till \$1
Round Head Iron dis 50 % dis 50 % Flat Head Brass, list Sept. 1, 75	Cast Steel
Brass and Silver Capped. dis 40 % Japanned, list of Piain Screws dis 45 % Lagor Common Coach dis 66 % to 8	Grape, Nos. 1 to 14
Coach, Patent Gimlet Point dis 4 6 50 5 Bed dis 15 7 Machine, Flat Head, Iron, Am. Serew Co. dis 25 5 Machine, Flat Head, Iron, Am. Serew Co. dis 25 5	Fence Staples (Jalyanian) 10 and 11 F in gage
** Round Head, Iron, **	Stubs Steel Wire. \$7.00 to £ gold Japanned Barb Fence. # b 15c Galvanized
" Hickory. dis 20210 % Hand. dis 20210 % Hand Rail, Sargent's dis 60210 %	Strei Music Wire, Nos. 12 to 27.
" Humason, Beckley & Co.'sdis 40&10 \$ Jack, Bell Bottomdis 20 \$ Sash (T. & S. Mfg, Co.)dis 25 \$	Wire Cloth. Clinton, green or drab, by the roll. per sq. ft. 32c net Wrenches,
Sash (T. & S. Mfg. Co.) dis 25 Seythern	Clinton, green of drab, by the roll., por aq. ft. 25k net Wreneidens, American Adjustable Baxter's Adjustable "5," New list May 1, '76 dis 25 g Baxter's Adjustable "5," New list May 1, '76 dis 25 g Coelf Gen C. 8 dis 48 g Glard. " (Malleable) dis 58 g Glard. Hull & Beldeu's "Climax" dis 58 g Knight's Patent. dis 25 g Knight's Patent. dis 25 g Lindsay" dis 25 g Tat's Pattern Duplex. new list, dis 25 g Tat's Pattern Combination. dis 25 g Bemis & Call's Patent Combination. dis 25 g Bemis & Call's Patent Combination. dis 25 g Glard. " Merrick's Pattern. dis 25 g Glard. " Micrick's Pattern. dis 25 g Glard. " Gyllnder or Gas 17pc. 8 dis 25 g Alken Pocket (Bright).
" Silver " " # doz 12.00 Grain # doz 14.00 from list	Collins & Co.'s dis 45 5 Coes' Genuine dis soxio 2 " Pattern (Wrought) dis foxio 4
Excelsior and Granger. 3 doz 11.50 dis \$1.50 Young America. 10.50 from list	" (Malleable) dis 75% 10 % Girard dis 50% 10% 10 % Hull & Belden's "Climax" dis 50% 10% 10 %
Wadsworth's Grass .dls 49 % Bush .dis 20 % Scythe Snaths .dis 25 %	Knight's Patent dis 25 % Lindsay's dis 25 % Taft's Pattern dis 25 % dis 25 % Taft's Pattern dis 25 %
Shears and Scissors.	Davis' Patent Duplex
" Iron. dis 45 % Seymour's Straight Trimmers. dis 65 % " Scissors. dis 65 %	Briggs' Patent disz 15 Cylinder or Gas Pipe dis 26 Aiken Pocket (Bright) 88 co. dist 26
Prining	Alken Pocket (Bright). \$8.00, dis to \$2.50 \\ \text{Wringers.} \text{Per doz.} Universal, Cos Wheels, No. 256, small fam'y size, \$60,00 \\ \text{a No. 256, small fam'y size, \$60,00 \\\ \text{a No. 256, small fam'y size, \$60,00 \\\ \text{a No. 256, small fam'y size, \$60,00 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Ball's Pat. Solid Steel Bent. gold, net	Crown No. 2. 74.00 54.00 No. 234. 53.00
Per dog. Sark Sar	Eureka, No. 1. 57,000 Noveity, No. 10, with Cog Wheels. 50,00
Patent Roller dls 2622 2 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2	Excelsior, No. A, with Folding Bench. 84,00 a No. E, for Set Tubs. 60,00
Silding Shutter, R. & E. list. dis 50&2 % Sargent's list. dis 55&10 % Moore's Anti-Fiction dis 55&10 %	Who is a from the second secon
Shovels and Spades. dis 32% 5	No. 2 04.00 No. 216 00,000
Rowland's	Stamped Tinware. Common Stamped Ware. dis Stamped Deep and Retinned Ware. dis
Middleboro' Shovel Co. dia 30 % Remington's (Lowman's Patent) dia 30 % Dunning's Shovels and Scoops dia 20%74 %	
Shovels and Spades dis 32% 5	METALS.
Oxford Patent dis \$\phi\$ Shavels and Fours. dis \$\phi\$ Fron and Brass fload, R. & E. list dis \$\phi\$ Polished Steel dis \$\phi\$	IRON Duty: Bars, 1 to 146. # w: Sheet, Band. Hoop and Scroll, 14 to 146. # w; provided, that none of the above Iron shall pay a less rate of duty than 35
Polished Steel dis 5082 % Sintes. Square Frames, Round Cornered, by casedis 70 % Less than a case. dis 65&10 %	IRON.—DUTY: Bars, 1 to 1½c. ₩ m; Sheet, Band Hoop and Scroll, 1½ to 1¾c. ₩ m; provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, #7 ₩ ton; Polished Sheet, 2c. ₩ m; Wrought Scrap, #8 № ton: Cats Scrap, #6 per ton. Rallroad, 7c. ₩ 1co ms. Boiler and Plate, 1½c. ₩ m.
Spokes.	Railroad, 70c, % 100 %s. Boiler and Plate, 1%c, \$\pi\$ \nu\) Pig Iren AMERICAN. Foundry No. 1.
North Carolina Handle Co. dis 20	Glengarnock
Wood. dis 30 % Bailey's. dis 25&10 % Spoke Trimmers.	Coltness. # ton (# 25,50 @ 26 on Rails.
Boliney	Tron, at mill. P ton \$32.00 @ 37.00 Steel. P ton \$32.00 @ 37.00 Steel. P ton \$3.00 @ \$4.00 Old Rails. P ton \$3.00 @ \$9.00
Species dis roke of the solution of the soluti	Wrought Scrap, from yard Fton 22.00 Common Iron:
Britania dis 6 5 Derby Silver Co dis 468-86 5 L Boardman's Av dis 668-86 5	% to 2 in. round and square
Rogers & Bro., A I	Refined Iron : \$\overline{\pi}\$ to z in. round and square \$\overline{\pi}\$ to z in. round and square \$\overline{\pi}\$ to 5 in. \$\overline{\pi}\$ to 6 in. \$\overline{\pi}\$ to 6 in. \$\overline{\pi}\$ to 5 in. \$\overline{\pi}\$ to 5 in. \$\overline{\pi}\$ to 5 in. \$\overline{\pi}\$ to 5 in. \$\overline{\pi}\$ to 5 in. \$\overline{\pi}\$ to 5 in. \$\overline{\pi}\$
Hall & Elton	Rods-% and 11-10 round and square
German Silver (L. Boardman's Sons)dis 30&5 % Diamond Steel (L. Boardman's Sons)dis 30&5 % Tin (P. S. & W.). Teas	Ordinary sizes. Sheet Iron. Common American. Nos. 10 to 20. PB 3 c
Douglass' P dos \$0.00 dis 20810 5	American. American. American. American.
Stocks and Dies	25 to 26.
Stone	75.
Washita Stone No. 1, \$\vert \text{No. 2}\$, \$\vert \text{No. 2}\$ \$\vert \text{Doc, net}\$ No. 1, \$\vert \text{Doc, net}\$ No. 1, \$\vert \text{Doc, net}\$ No. 1, \$\vert \text{Doc, net}\$	77 ** \$\frac{1}{2} \text{ B B Sic: } ** \$\frac{1}{2} \text{ B B 7 lec} \\ Patent Planished
Arkansas Stone	Patent Pinnianed
Joseph Dixon's	which Copper is a component of chief value), 45 % ad valorem.
Hising Sun # gross \$2.75, net 185 pt Bising Sun # gross \$2.75, net Steel # gr	American Ingot
Iron dis 50%; full cases, dis 50%10%/2% Iron dis 50%; full cases, dis 50%10%/2% Nickel Plated	Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., \$\pi\$ ng. ft. \$\pi\$ soc. Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., \$\pi\$ ng. ft. \$\pi\$ soc. Braziers' Copper, 10 oz and 12 oz., \$\pi\$ sq. ft. \$\pi\$ b 30c. Braziers' Copper, 10 oz and 12 oz., \$\pi\$ sq. ft. \$\pi\$ b 30c. Braziers' Copper, 10 oz and 12 oz., \$\pi\$ sq. ft. \$\pi\$ b 30c. Circles sq. ft. \$\pi\$ l. and in a diameter and over. \$\pi\$ b 31c. Circles sq. ft. \$\pi\$ b 31c. Cocomotive Fire Box Sheets. \$\pi\$ b 31c. Locomotive Fire Box Sheets. \$\pi\$ b 38c. Sheathing Copper, over 12 oz. \$\pi\$ sq. ft. \$\pi\$ b 38c. Sheathing Copper, over 12 oz. \$\pi\$ sq. ft. \$\pi\$ b 38c. Copper Bottons. \$\pi\$ b 36c. Copper Bottons. \$\pi\$ b 36c. Copper Bottons. \$\pi\$ b 36c. No exceed 34 oz. to the sq. ft. 42 xg. by the case. \$\pi\$ sheet soc. \$\
Star Try Squares and Bevels dis 35 5 Disston's Try Squares and T Bevels dis 45 5 Winterbuttom's Try and Mitre dis 205 105	Lighter than 10 oz. 1 sq. ft. 1 2 34c Circles less than 84 in. in diameter 2 2 3 34c Circles 84 in. diameter and over 2 2 3 34c
Bailey's Try Squares and T Beveisdis 25&10 \$ 'Nacks, Hrads, &cList of January 1, 1870. Tacks, Half Woight, Americandis 75 }	Segment and Pattern Sheets \$\tilde{\psi}\$ B 31c Locomotive Fire Box Sheets \$\tilde{\psi}\$ B 28c Sheathing Copper, over 12 oz. \$\tilde{\psi}\$ sq. ft. \$\tilde{\psi}\$ b 26c
Full " dis 50 Haif " Swedes dis 65 Haif " dis 30	Bolt Copper
"Tinned	to exceed 34 oz. to the sq. ft. TINNING. 14x48, by the case
" Copper dis 40 to 40 to 10 to 1	14x48, by the case. P sheet 6c 14x48, less than case. P sheet 8c For tinning both sides, double the above amount. O'NEUL'S PATENT PLANSHED COPPER.
Shoe Nalis— 4-8ths and longer, &c 3½-8ths 9c 9 b.net Trunk, Clout and Finishing Nalis—	14 and 16 oz. and heavier ₱ ₱ 34c By the case. ₱ ₱ 39c 12 oz. and lighter
Since Natis— 4-8ths and longer, &c 31/4-8ths 9c \(\Pi \) B.net Trunk, Clout and Finishing Natis— 5/4 9/4 9/4 1 15/4 in and over. 25/20 17/14 13/3 116 \(\Pi \) B	7 in., 14X52. 8 in., 14X56. 9 in., 14X60. 14 and 16 oz. and heavier. \$\mathbb{P}\$ \$\mathbb{B}\$ \$360. By the case. \$\mathbb{P}\$ \$\mathbb{B}\$ \$350.
Tap Horers. dis 20\$10 5 Common and Ring. dis 20\$10 5 Ives' Tap Borers. dis 10\$10 \$	14 and 16 oz, and heavier
Tapes, Measuring. American Flask and Cap Codis 25 %	Brown & Sharp s Gauge the Standard for Meta; Old English Gauge the Standard for Wire, BRASS MANUFACTURERS' FRICE LIST.
Double-Pointed Tacks. dis 40% 5 % Tap Borers. dis 20% 10 % Tap Borers. dis 20% 10 % Tap Borers. dis 10% 10 % Tapes. Measuring. dis 20 % Tapes. Measuring. dis 20 % Tapes. Measuring. dis 25 % Eddy's. dis 25 % Spring Tapos. dis 26 % Then Trays. dis 26 % Then Trays. dis 25 % Then Trays. dis 15 % Therefrom teres. dis 15 %	Cook and the Doll and Chant The Samuery I, 1076.
Thermometers. dis 60&10&10 % Tobacce Cutters.	HIGH BRASS.
## 15 15 15 15 15 15 15 15	not water than 14 lb. 270 All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive
Nashua Lock Co.'s	All Nos. not thinner than to No. 28, wider than 2 in, not wider than 1; in
Tools (P. S. & W.). dis 16630 \$	All Brass thinner than No. 38 is Platers' Brass. at50c Sheets 24x48, and all sheets cut to particular sizes
Traps. Game, Newhouse	Sheets wider than 30 in. and under 40 in
Mouse, Wood, Choker	Printers' Raise. 400 Sheets wider than 30 in. and under 40 in. 450 10 in. and over . 450 11 in. and over . 450 12 in. and over . 450 13 in. 450 14 in. 450 15 in. 450 16 in. 450 17 in. 450 18 in. 450 18 in. 450 18 in. 450
# Round Wire	61 66 66 30 6 30 6 50 510 64 66 11
Traps- Game, Newhouse dis 30 5	gc ♥ B more than High Brass, Gilding Metal, &c ♥ B more than High Brass. (IB Bars
Lothrops Brick and Plastering dis 10 5 Disston's Brick and Plastering dis 20 5 Peace's Plastering dis 20 5 Clement & Maynard's dis 20 5	Platers' or Gold Metal Sawed
Clement & Maymard's dis 20 \(\)	Metal in width 2 in to 36 in to No. 28, inclusive, 1c. & n advance. Metal, in width 2 in to 2 in., thinner than No. 28, 2c. & n advance.
	Metal, in width 1 in. to 16 thinner than No. 28, 30 P m
Butter and Cheese	Metal, in width 1/2 in. to 1/4, inclusive, not thinner than No. 28, 2c. 1/2 in advance. Metal, in width 1/2 in. to 1/4 thinner than No. 28, 5c. 1/2
V Solid Box, Trenton. 0 to 160 lbs., 12) co, net Solid Box, Trenton. 0 to 160 lbs., 12) co, net wilson's. 160 and over, 22c, 1 160 and over, 22c, 160 and ov	Metal, 14 in. in width and less, icc. P B advance.
"Crown" (A. H. Hildicks) 40 to 100 lbs., 150 currency, dis 20 %	GERMAN SILVER MARKET METAL AND WIRE.
Peter Wrights Currency, dis 26 co 27	4 per cent., 12 inch, to 240. 20 \$0.55
Trentondis 25 8 Backus and Uniondis 25 8 Merrill's dis 25	10 " 173 .99 15 .88 L19 16 .67 .69 German Silver Sheets over 12 in. wide and weighing more than 16 Bs., \$2.25 \times B.
" Fisher & Norris	more than 16 bs., \$2.25 \times b. Advance 2c. for each additional inch in width above 12 in., and 2c. \times b on each No. thinner than Nos. 26 to \$6, inclusive.
" Stevens' diustable die 35 Saw Filers, Bonney's diustable die 35 Saw Filers, Bonney's dos \$24,00, dis 20210 Stearn's die 20210 Hopkins' \$\phi\$ dos \$37.80, dis 20 Lowell Hand Vises dis 20 Venillators.	56, inclusive. All German Silver thinner than No. 36 is Platers, at 500 % additional. German Silver Scrap one-third less than net price of
Hopkins' F dos \$17.40, dis 10 \$ Lowell Hand Vises. dis 20 \$ Ventilators. dis 20 \$	500 W additional. German Silver Scrap one-third less than net price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap and Chips, balf the price of Scrap ERLSS AND COPPER WIRE.
Protective (upper) per foot, \$1.00	High Brass. Low Brass. Copper. No.0 to 20
Washers. 1.50 dis 25 K. Washers. 1.50 dis 25 K. Johnson's dis 10 K. Johnson's 1.50 dos 21 K. O. dis 25 K. Johnson's 1.50 dos 21 K. O. dis 25 K. Johnson's 1.50 dos 21 K. O. dis 25 K. Johnson's 1.50 k. Johnson's	No.22
Washers, See Nuts and Washers, Weather Biring.	N0.25,
partie in a continue of the state of the sta	No.27

-0	N 6	
% K		59 69
2 2 2	No.32	75 61
04049	NO 34	go an
NEWN	Spring Wire 2c ? B advance. Fiat, Square and Half Bound Wire 5c ? B advance on Round Wire. Fancy Wire not less than 10c ? B advance of Roun	96
N N N	WIEC.	
0.0	Wire straightened and cut, smaller than No. 8, an not less than 2 feet lengths, 10c.	d
000	Wire and Rods less than 2 feet lengths, special rate Twelve cents per b extra for spooling on 1 b spool	n.
de	Brass Rods, No. 8 and smaller not less than 2 feelengths, 49c. Wire straightened and cut, smaller than No. 8, an not less than 2 feet lengths, 49c. Wire and Rods less than 2 feet lengths, special rate Twelve cents per B extra for spooling on 1 B spool MRCELLANGUS. Common Plain Brass l'ail, Ears	40 40
2 10	High Brass Scrap.	3C
t	Low Gliding Gliding. Turnings, Filings and Chips half the price of Scrap. Terms—Not cash. Interest to be added after third days.	ye.
24.34 24.34	Plain to No. 20 Inclusive above lake to a in	
21018	Nos. 21, 22, 23, two cents advance on List for each	50
200	Number. Nos. 24, 28, 26, four cents advance on List for each Number. Above No. 26, special rates. Plain, 34 inch. 1	
04 54 5	Plain, ¼ inch.	70
all or so	Prices.	ÓΟ
1	Fancy Tubing to No. 20	
	Tubing Sawed or Cut 2 to 4 feet long, 2 cents ad-	53
0	under 2 feet.	
0	Mate. ZINC TUBING, -net,	22
0 0	Sancy.	98 31
0	Per cent.	95
0	12	25
000	18 11	
0	STEEL DUTY: Bars, Ingots, Sheets and Colt valued at 7 cents & B., or under, 244 cents; over,	5. 7
	by b, and to advert, 3 cents we b; over 1, 3 cents by b, and to advert. Railway Bars, 14 cents by B. Railway Bars, in part Steel, 1 cent by b. Provided	b.
	STEEL.—DUTY: Bars, Ingots, Sheets and Coil valued at yeents & B., or under, 24% cents; over, cents, and not above 11, geents & B.; over 11, 3% cent & B. b. and 10 % ad val. Railway Bars, 1% cents & B. Railway Bars, in part Steel, 1 cent & B. Provide that Metal cemented, cast or made from 1 ron by th Bessemer or pneumatic process, of whatever form a description, Shall be classed as	e
	Tool American Cast Steel.	
8 5	Spring. Homogeneous. 125 Boiler Plate. 125	
	Machinery (round and square).	e
0 0	File.	e
0	circular as to size	ē
0	Tool, extra fine. # 10 46 (6 7 Spring. 10 8 (6 5	c
000	Gun or Homogeneous. # B 8 @ 16 English Steel.—Payable in gold, net.	ie
0	Best Cast P B 153 Extra Cast D D 163 Round Machinery Cast P b 164	e
	" Swaged, Cast. P b 18c " Best Double Shear. P b 15½ " Blister, 1st quality. P b 13c	0
1	Blister, 1st quality \$\psi\$ b 15c German Seed, Best. \$\psi\$ b 1sc " st quality \$\psi\$ b 1cc " 3d quality \$\psi\$ b 1cc Sheet Cast Steel, ist quality \$\psi\$ b 1cc	
	20 QUARTLY	0
	LEAD, DUTY: Pig #2 W 100 Ds; old Lead, 1%c # 1	d
	Pripe and saccet, 25c c # iii. 19% @ 654c gol Spanish	d
	Bar	MM
	Shot Drop 8% Buck, olic, dis 10	MMM
20 00 00	N. P. U	le
	TIN DUTY: Plates, Sheets, Tagger and Terne, Lic 3	P
	of, not enumerated, 35 per cent, ad. val. Bars, Bloc and Pigs free. Banca, subject to duty of 10 per cen Banca. \$\fomma\) By B, 9 currenc Straits. \$\psi\) 17,6 is currenc English. \$\psi\) 16 csty currenc	K L.
ì		y
	I C 10X14 12X12 Prime Charcoal	5
3	1X 10X14 Prime Charcoal	0
2	D C 1256X17 " 0.00 @ 6.2	0
-	For each additional X add	5
2	I C 10X14/ I C 12X12/ I C 14X20/ I C 14X20/	5
	Prime Char. 2d qual. Coke.	
2	TERNE PLATE Ad qual Coke	4
1	I C 20X200	
	SOLDERNo. I, IO @ IIC; No. 2, 94 @ 9% SPELTER-DUTY: In Pigs, Bars and Plates, \$1 100 Bs.	0
,	Silesian, cash. 5¾ @ 7c gold American, cash. 5.75 @ 6 Lehigh, on spot. 5.75 @ 6	de
,	Silesian, cash	,
1	2540 F B. Sheet, Cask	CI
	Paper Stock, Old Metals &	
1	Paper Stock, Old Metals, &c. (Dealer's Selling Price.) (Canvas linen	6
,	0 ootton No v	- 1
2	Seconds No. 2	
1	Soft woolens7 @ 75	6
	Gunny bagging. 356 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6
1	Rope cuttings	9
	Grass rope. 334 6 4 Tarred shaking. 2 6	1
1	White collar cuttings, all paper 7	1
-	Hard White Shavings, No. 1	,
1	White Shavings, No. 2	•
		(
1	" Heavy 34 66 11 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	1
	Prints 15 @ 2 Pure Manilas 2% @ 2 Bogus Manilas and Hardwares 1 @ Commons 5 @	6
1	Commons. 56 @ Binders' Board Cuttings. 1 @ 15 Straw Board Cuttings. 36 @	1
1	Woolen Tailor Clips	6
1	Copper, heavy	
	Brass, light 9 6 heavy 10% 6	
1	Heavy Composition	
1	Zino. 9 4 Powter, No 1 10 6	
1	Wronght Iron. per ton \$18,00 Machinery Iron. per ton 12,00 Light Iron.	
1	Powter, No. 10 10 10 10 10 10 10 1	
1	Paints, Oils, &c.	-
1	Paints.	
1	" Ivory Drop, fair12 @ 150	
1	" best	11

.kegs, 8c asst'd cans

Drown, Spanish	bantum Sundr line Block Block Block T Patent, Am'n tings Sheet lers' Points, Zine 1, Copal Damar. Shellae, English dark arge, English dark arge, English lie Stone, sciected Lump y, in bladders in bulk en Stone, soft, English its Turpentine ting Spanish Glass FRENCH WIND Prices current per Single Thick— Sizes.	ass't	cans, 1	. W g	al. 15c
Brown 1	kine. Block r, Patent, Am'n tings. Name of the control of the con	ass't	cans, 1	33 of a c c c c c c c c c c c c c c c c c c	al. 15e
Van Dyke Combination price Charles Carmine, 40 Charles Charles Carmine, 40 Charles C	Block Block er, Patent, Am'n tings. , White Sheet Sheet Sheet Damar Shellao, English Damar Shellao, English dark arge, Englisgh dork dork dork fin buk FRENCH wind Price current Glas FRENCH wind Price current Single Thick.— Single Thick.—	*. W GI., r box o	ASS. f 50 fee nt 60 %	33	\$1,7 k e g c g c g c g c g c g c g c g c g c g
Carmine, 40. combination price green, Caronne	Block r, Patent, Am'n tings r, Patent, Am'n tings specific Sheet Sheet Copal C	ass't	eans, i	. 33 . 33 	k egg, ge
Parks Red Re	, White. Sheet. Sheet. Sheet. Copal. Copal. Copal. Copal. Copal. Copal. Copal. Godername. Shellac, English dark. d	s. ow gi., r box o	ASS. f 50 fee nt 60 %		250 4 50 250 250 250 250 250 250 250 250 250
Paris	s, white Shoet Shoet Shoet Jers' Points, Zinc Joanna Shellao, English Joanna Shellao, English Joanna Shellao, English Joanna Joa	s. ow gi., r box o	ASS. f 50 fee nt 60 %	9	4 (a) 4 (b) 36a) 36a) 36a) 36a 36a 36c 35a
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Brown	Shellac, English Shellac, English Shellac, English Arge, English dark Arge, English die Stone, selected Lamp put budders in bulk en Stone, soft, English its Turpentine ting Spanish Glas PRESCH WIND Prices current pet Single Thick.—	*. ow gl. r box o	488. f 50 fee nt 60 %	t.	300 250 300 250 250 250 250 250 250 250 250 250 2
Brown	Shellac, English Shellac, English Shellac, English Arge, English dark Arge, English die Stone, selected Lamp put budders in bulk en Stone, soft, English its Turpentine ting Spanish Glas PRESCH WIND Prices current pet Single Thick.—	*. ow gl. r box o	488. f 50 fee nt 60 %	t.	300 250 300 250 250 250 250 250 250 250 250 250 2
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	y, in bladders. In bulk en Stone, soft, English its Turpentine. ting Spanish Glas FRENCH WIND- Prices current per Single Thick.— Single Thick.—	w. ow gi. r boz o	488. f 50 fee nt 60 %	t.	C gOIG 4 ca be
	y, in bladders. In bulk en Stone, soft, English its Turpentine. ting Spanish Glas FRENCH WIND- Prices current per Single Thick.— Single Thick.—	w. ow gi. r boz o	488. f 50 fee nt 60 %	t.	C gOIG 4 ca be
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Mineral Paints	y, in bladders in bulk en Stone, soft, English its Turpentine ting Spanish Gilus Prices current per Single Thick,— Single Thick,—	w. ow gr. rboz o	488. f 50 fee nt 60 %	t.	21 ₃ C
Orange Mineral	in bulk en Stone, soft, English its Turpentine ting Spanish Glas FRENCH WIND Prices current per Single Thick	w. ow gi. rboz o	488. I 50 fee nt 60 %	t.	20 8e 33c 34c
Red Lead, American Sc Sc Se Se Se Se Se Se	ting Spanish	w. ow gi. r boz o liscou	488. I 50 fee nt 60 %	t.	330
" Venetian (N. C.) dry	ting Spanish	w. ow gi. r boz o liscou	488. I 50 fee nt 60 %	t.	330
India dry asst'd cans, 11c; kegs, &c Rose Pink 10 6 15c Sinna, Annet can, Raw 4c Burrit 10 6 15c 1	PRENCH WINDS Prices current per Single Thick.—c	w. ow gi. rboz o liscour	488. I 50 fee nt 60 %	t.	
Indian dry	Prices current per Single Thick.—	ow GL. r bow o	f 50 fee nt 60 %		ath
Rose Pink	Prices current per Single Thick.—	r bow o, liscom	f 50 fee nt 60 %		ath
	Single Thick,-	liscom	nt 60 %		ath
Raw "				net.	ath
Haw "If 60 15 00 250	SIZEB.	181.	2d.	nd.	ath

Umber, Burnt4 66 8c				Sent	4
" In OH	8 to 10 x 15			\$ 6.24	8 5-75
11 M	14 to 16 x 24		7-75	7.25	6.90
	22 to 20 x 30	10.75	9-75	8,75	
English for mold 20 X	28 to 24 x 36	13.00	11,50	9.75	
Trieste	37 to 26 x 44		13.25	10.75	
American, Common	10 to 30 x 50,	15,00	14.00	11,25	
	52 to 30 x 54	16,00	14.50	12,00	
White, Paris, English, prime	56 to 34 x 56	17.25	15,50	13,50	
Yellow Uchre, French 8 x 1 30 X 0	50 to 40 x 60	20.75	18.75	17.25	
in oilasst'd cans. ric: kegs, Sc	Double ThickD				-
" Verment in coaks also	BEZEG.	Dif.	ad.	ad.	48 01
Yellow Chrome	01400	IBt.	240.	3111	de ur
Zinc White. American No. 1 dry	8 to 10 x 15	\$12.00	\$11.00	\$10,00	8 0.2
	14 to 16 x 24		12.50	11.75	10.4
French (Paris)	22 to 20 x 30	17.25	15-75	84.00	
10 OH	28 to 24 x 36	19.75	17.25	14.50	
Offin. 26 X 3	36 to 26 x 44	23, 25	31.25	17.25	
20 X	46 to 30 x 50	24,00	22,50	18.00	
Linseed, Raw, in casks and bbls Figal, 60c @ 61c 30 X	52 to 30 x 54	25.75	23,25	19.25	
Whale Crade	56 to 34 x 56	27.75	25,00	21.75	
" Bolled, " " 6sc @ 66c 3 x	to to 40 x 60	29.25	27.75	24.00	
	es above 40 x 60-\$10,00				m. 2000. W
Cotton Seed, Crude bld coe leve t	inches.	her or	A CAL	ed IOF	every
" Southern Yellowbbl, 55c An	additional to per cent.	will 1	e cha	rged f	or all
Whitebbl, 600 Glass	s more than 40 inches v	vide.	All siz	es ahe	Ve 52
	es in length, and not ma				
30e (a) 38e Inche	es, will be charged in the	a sa umi	ted inc	nes br	w.Ket

PRATT & CO.,

BUFFALO, N. Y., Manufacturers and Dealers in

Hardware, Iron & Nails, Bolts, Nuts, Washers, Screws, &c.



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New York Wholesale Prices, March 27, 1878.

	-
HARDWARE.	
A nvila, American. Wright's. W m gold; 104ge over 250 mm 11c, gold Armitage's Mouse Hole. Wilkinson's. P m gold 10c 104ge Wilkinson's. P m gold 11c	
Wikinson's. P h gold tre Eagle Anvils (American). V h gold is 20 % Augers and Bits. Conn. Valley Mfg. Co.	-
Dougles; Mf . Co	-
Dougle#: Mf Co	
Cook's, Ives'. dis 4,54 to 8 Snell Mfg. Co. dis 206 to 5 Jennings' Bits. dis 106 to 5 Ives' 'Lonnings' Bits dis 2	-
Lewis Single Twist Bits. dis 10 g Andrews Bits. dis 50 g Griswold's Patent Bits. dis 30 g	-
Expansive Bits, Clark's, smail, \$10; targe, \$20. dis 20 %	-
8:5. dis 25 % Hollow Augers Ives dis 26 % dis 25 % French Swift & Co. dis 26 % dis 26 % of sectors of the control of the contr	-
Ives	-
Diamond # dos # fross, dis 40 % # dos # dos # fross, dis 40 % # dos # dos # fross, dis 40 % # dos # fr	-
Ct. Valley MIg. Co., dis 30&10 % Hartwell's dis 50&10 % Douglass' dis 40&10 % Ves' dis 40&10 %	
Morse's Bit Stock Drill, List of Jan. 1, '76. dis 25 ½ L'Hommedieu's Ship Augers. dis 15 ½ Watrous Ship Augers. dis 15 ½	-
Watrous Ship Augers	
Peg, Plain Top \$1.00 \(\psi \) doz-dis 10 \(\psi \) (dis 3\(\phi \) (is 3\(\phi \) (i	-
Awis Sewing, Common. # gross \$1.35—dls 25 \$	
Shouldered Brad. \$\pi\$ gross \$2.70\to \text{dis} 25\pi 10 \frac{\pi}{2} \text{Handled Brad. \$\pi\$ 88.00 \$\pi\$ gross\text{-dis} 25\pi 10 \frac{\pi}{2} \text{Handled Beratch. \$\pi\$ 7.50 \$\pi\$ gross\text{-dis} 25\pi 10 \text{2} \text{10} \text{5}	
No. 42, \$10.50; No. 43, \$12.50	
Common (Guy C. Hotchkiss, Field & Co.) \$\mathbb{D}\$ \$4\frac{1}{2}\$ Solid Collar, Case Hardened, Chilled Box \$\mathbb{D}\$ \$80	-
Axle Grense, Frazer's	1
Bed Keys. — Gray's Ratchet dox \$4.00, dis 15 \$ Bells.	
White Metal. dis 60&c&t0.5 Silver Chime dis 20&10.5 Swiss dis 20&10.5 Swiss dis 25&10.5	1
Gong, Abbe's	
'Crank, Taylor's dls 25&10 \$ "Brook's dls 50 \$ " Cone's dls 10 \$ " Connel's dls 50 & 10 \$	
Taylor's Bronze or Plated Lever net Japanned Leverdis 25&10 %	
Pull, " " " dis 50&108.2 % Pull, " dis 50&108.2 % Western dis 2,8 10.5 % " Western dis 2,8 10.5 % " Western dis 2,8 10.5 % " Western dis 50.5 % " We	1
Pull, Brook's dis 50x10x2 x dis 50x dis 50	,
· Dodge's Genuine Kentucky, new list-	ľ
** Yaw's Genuine	
Extra and Pittsburgh Patterndis 20 %	200.00
Monders	1
Washburn's Patent	1
Merriman's new list net Hind Staples. Boardman's Paten, \(\frac{1}{2} \) in and larger \(\frac{1}{2} \) is \(\frac{1}{2} \) in \(\frac{1} \) in \(\frac{1}{2} \) in \(\frac{1}{2} \) in \(\frac	1 70 1
Blocks.—Burr & Codis 25 % Differential Pulley Blocksdis 20 % Tackie, Rope and Iron Strapped (The Penfield	1
Stanley Rule and Level Codis 331-205 Biowers. Keystone Portable Forge Codis 20 5 Bolts. Parrel Shutter Scdis 6000	I
Cast Iron Barrel, Shutter, &c	HA .
Wrought Iron Barrel	ECI
Sunk Flush, Sargent's dis cocioca co	01
4 Distod Fron & Silds Flore 4 distant	40
Carriage and Tire, Common	1
Tire, Am. Serew Co	PATRICIAL PROPERTY
" R. B. & W. (Old 1887) dls 708 c. Scash	7
Machine	AHAA
Boring Machines. Upright, Angular.	1
Spell's, no Augers 4.00 Spell's, no Augers 4.00 Spell's, no Augers 4.75 Spell'	E
Shell's, no Augers	H
Humason, Beckley & Co.'s	G
Wilson Mr. Co. dis 10 %	
Commor Ball (American)	
Hright Wire teods	F
Westerst Broom die ne d	P
Cast Brass	BCC
Local Joint, Narrow and Broaddis 70& 10 %	DHM
Fast Joint, Narrow dis 50&10 5 Broad dis 100 dis 50&10 5 Broad dispanced dis 50&10 5	NEAV
Japanned dis 625@10 %	0
Mayer's Hinges	B
Union Mfg. Co.'s Fancy Butts—dis 55&10 \$	R
E ritors Figure 2 with Iron Acorns dis 5-210 g	N
Lt. Narrow	M
Table Butts, Back Flaps, &c. dis 35&10 5 Lastic Blind, Regular. dis 35&10 5 Light. dis 40&10 5	I

lew York Who	
Loose Pin, Wrt	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Sabin Stg. Co., Double Acting	2 2 2 2
Seymour. dis 60&10	1
Huffer dis 40&10 3 Garretson dis 60 3 Clark's, Nos. 1, 3, 4, 40 and 50 dis 70 3	I I
Butchers' Cleavers, Humason & Beckley Mfg, Co. dis 20 9 D. R. Barton Tool Co. dis 20 9	I S
Beatty's	T
\$20,00 26,00 20,50 33,00 37,00 41 0 45,00	I V
American # dos \$2,25, dis 60 \$ Lyman's # dos \$3,75, dis 20 \$ Poole # dos \$3,75, dis 40 \$	A SO A V
D. R. Barton Tool Co. dis 20 g Readley's. dis 25 g Beatty's. dis 25 g	E
Sardine Scissors # doz \$7.00, dis 45 % Star # doz \$5.00, dis 25 % Star # doz \$5.00, dis 25 % Capses Percussion, # 1000.	AAGN
E. B. 1-10 Ground	HMA
Colt's 1-10	LSHVF
" D.W. P. \(\frac{1}{3} \) 1.55, dis 5 \(\frac{1}{5} \) Elg's E. B. \(\frac{1}{5} \) Coll's 1-10. \(\frac{1}{5} \) Cyc. dis 5 \(\frac{1}{5} \) Elg's E. B. \(\frac{1}{5} \) Coll's 1-10s, 86 \(\frac{1}{6} \) Egold Coll's \(\frac{1}{5} \) Lios, 86 \(\frac{1}{6} \) Egold Coll's \(\frac{1}{5} \) Lios, 80 \(\frac{1}{5} \) Egold Coll's \(\frac{1}{5} \) Lios, 80 \(\frac{1}{5} \) Gold Coll's \(\frac{1}{5} \) Christian Horse and Curry \(\frac{1}{5} \) dis 33\(\frac{1}{5} \) Cotton. \(\frac{1}{5} \) 20\(\frac{1}{5} \) Cotton. \(\frac{1}{5} \) 20\(\frac{1}{5} \) Cotton. \(\frac{1}{5} \) 20\(\frac{1}{5} \) 20\	MT
Cast Steel, Polished Points Pdoz \$5.00, dis 30 % Iron, Steel Points Pdoz \$2.00, dis 45&5 %	B
Casters Bed dis 55	P
Hotehkiss' Sons' dis 10&10 % Humason, Beckley & Co.'s dis 60&10&10 % Sargent's dis 60&10&10 %	Ir E
Chain. Trace, 6/4-1-2 by the cask, # pair, gold, 45 @ 46c 64-10-3 by the cask, # pair, gold, 45 @ 46c	E
Union Nut Co	CCDG
6 Brass dis 50€ 5 € 5 € 5 € 5 € 5 € 5 € 5 € 5 € 5 €	C
	H
Socket Framing, Crossman dis 66&10 \$ Socket Framing, Crossman dis 66&10 \$ Buck Bros new list, dis 25 \$ Hart Mgc Co dis 65&26028 \$ Merrill dis 66&10 \$	E
Merrili. dis 60kto 5 Witherby Tool Co. dis 60kto 5 Witherby Tool Co. dis 60kto 5 Firmers, Crossman dis 64k5 5 Buck Bros new list, dis 25	N
Hart Mrg. Co., extra.dis 6s&x&to&z \$ Merrill	W
Tanged Firmers extrs	Na " J
Fron, Providence Tool Co.'s, Wrt. Iron.	Fa
Carriage Makers', Sargent's dis coz roz roz roz roz roz roz roz roz roz r	Ra Hi
Cockeyes134 in., 28c.; 134 inch, 33c.; 134 in., 37c, net	H
Coffee C	Ve Mi
Coffee Mills. Board and Box. dis 20625 5 increase Wilson's	Pr
French Steel. dis 20 % The Swift (Lane Bros.) dis 25 % Compasses, Dividers, &c. Compasses dis 35&10 %	De
Campers dis 30210 5 Dividers dis 4, 5 Bemis & Call Co.'s Compasses and Dividers dis 32&10 5 Cook's dis 15 5	Re Br Ja
Schol's Fat. \$4.5, \$	Ba W Su Fli
D. R. Barton Tool Co	Bo
Cast Steel Foints.	Ha No Br Hi
\$6, \$6, \$4 in. \$1.80, 2.00, 2.40. dis 10 \$ Curling Tongs \$\psi\$ dos \$6.50, dis 15 \$ Pinching Irons \$\psi\$ dos 7.50, dis 20 \$ Curry Combs.	Ay So
Curry Combs. Curry Comb Mr. Co	Fil Au
Hotekins & Nevidag **, from & Brans, tola fist. dis 20% [5] Hotekins **, Novelty	Ba
White Enamel	No Ch Cli Ste
Cocoa, Plain Pdos \$3.75 @ \$4.25, net	He Ju Fit Ho
Bog Collars. Embossed Gilt. Leather	An Sai Ne
Consists to the second	Isa 8
Johnson's Red	Hus
Chairenge (Coil)— Nos. 9 7 6 Japanned	Hu 8 C
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Bradley's	Uns
O D Q A 517	M. S. H
Wilson's dis 20 %	L
Ingersoli's (old list)	Wa
"Miller's Falls. each \$2.50 dis 25 \$ Ratchet, Merrill's. dis 20 \$ Ingersoil's (old list). dis 25 \$ Ratchet, Merrill's. dis 25 \$ ingersoil's (old list). dis 25 \$ ingersoil's (old list). dis 25 \$ ingersoil's (old list). dis 25 \$ ingersoil's. dis 20 \$ ingersoil's. dis 20 \$ ingersoil's. dis 20 \$ ingersoil's ingersoil's. dis 20 \$ ing	65 65 66
Horse's Beach Patent	Rol

,	rosaic i ricos,	
MM	National	
M HO HO	Elevator Buckets. Mill E. Buckets, light, 5 to 10 inches, (Duc's Improve W 100 \$23.00 \$54.00, n Mill E. Buckets, heavy, 5 to 1 inches (Duc's Improve W dou \$5.50 & \$10.20, n	
***	Mill E. Buckets, heavy, 5 to 10 inches (Duc's Improve # doz \$5.50 @ \$10.20, n	e
MMMM	Washington Mills—Regular Nos. F b 40 dis re	8
BR 88.86	Emery, Genuine Chester—Regular Nos. # \$5.00 @ \$10.20, in Genuine Chester—Regular Nos. # \$5.00 dis ic Washington Mills—Regular Nos. # \$5.00 will be a simple of the control	000
N MI	Enameled and Tinned Ware- Kettles. dis 40 @ 50	e
RWW	Hampden Emery Grain Se ne	****
×	Door Lock	5
ANA	Penn's. dis co	97.97
***	Star dis 55&to dis 55&to dis 20&to Wood and Metallic, High list. dis 40.	0.20.00.0
AN NA	Wood	26707
MMX	Auburn	g
C WW	G. & H. Harnett dis 25 Nicholson List) dis 25 Nicholson. (Nicholson List) dis 15 65 25 Heller & Bros. 85 00 to & currency, dis 15 65 25 Madden & Cockayne File Co. \$5 00 to & cur, dis 25 00 tit % . \$45 to £ 80 1. & Kliey Carr \$40 to £ 90 1. & Kliey Carr \$40 to £ 90 15 to £ 90 15 to £ 90 15 15 15 15 15 15 15 15 15 15 15 15 15	AND NAMES
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dd	Buttner's	d
N 54 54	Thos. Turner & Co. (Peter A Frasse & Co.). 450 to £ gol Horse Rasps. 475 to £ gol H. Disston & Sons (new list). dis 35	ddd
7.76	Limet & Co. (French)	di %
N 28 28	" 5	古七七七
N N	Improved Knox (Climax), 4-inch. 2.65 each ne	tt
8	Eagle, 314-inch Roll. \$16.50 \(\) each ne 21.75 \(\) doz, ne	2 2 2
e	Euroka, No. 1, 7-inch Roll 5.75 each ne "No. 2, 5-inch Roll 5.00 each ne Crown, 44-in, Roll 82.20: 16-in, 82.56: 18-in, 82.80 each, ne	ttt
1 5 5	Champion, 4 in., \$2.15; 6 in., \$2.50; 8 in., \$4.00 each ne Domestic Fluter	tt
13	Butcher's. Walter Spencer & Co.'s "Diamond". 450 to £ gol Fisher's. 1,75 to £ gol Thos. Turner & Co. (Peter A Frasse & Co.) 4,50 to £ gol Thos. Turner & Co. (Peter A Frasse & Co.) 4,50 to £ gol Limer & Co. (French). 1,85 to £ gol Limer & Co. (French). 1,85 to £ gol Fisher's. 1,85 to £ gol F	5 5
1	Forges. Keystone Portable Forge Co. dis 20; Keystone Portable Forge Co. dis 20; Forks. Hay, Manure and Spading new list, dis 15; Frated At a dis 40&5; France At a dis 40&5;	6
6 6	Piated A I. dis 40&5 ; Reed & Barton. dis 40&5 ; Fruit and Jelly Presses.	66
200	Fry Pans. Burnished, P. S. & W., new list dis 60	ĸ
6	No o 1 2 3 4 5 6 7 8 8 9 doz	
2000	(118 35)	6
	Nail and Spikedis 40@45 9 "Bee" GimletsF gross \$12.00, dis 45 9 "Eureka " Gimletsdis 40	200
	Wire	5
1	Douglass' dis 40&105 Glue Potts	
1	" L. F. & C.'s "Handy"	
	Seading Hardware Co	
	Hanners (18 12 14 14 14 14 14 14 14 14 14 14 14 14 14	
	iumason & Beckley Mfg. Co. dis 33½ 5 Cheney's Steel Face and Claw dis 10 all Steel dis 2002 verree dis 5 dis 5	
	reroe	
	Providence Tool Co.'s Hand Cuffs, \$15.00 P dox } dis 10 % Leg Irons, \$25 P doz} dis 25 %	
1	Nos 0 1 2 3 4 Per doz \$0.80 1.00 1.18 1.35 1.50 dia 648:10 \$	1
ı	sronzed fron Drop Latches P doz \$0.85 @ \$1.00 net	
b	no Plate yec net no Plate yec net larn Door per doz x_00 dis 6sk10610 wrought Chest dis 6ok10 surface Chest, Sargent's list dis 6ok10610 land Chest dis 6ok10610 land Chest dis 6ok10610 land Chest dis 6ok10610 land Chest dis 6ok10610	
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1	Afting dis 60-870 August 200	
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1	tocket " assorted, " 7.50 dis 40 %	
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1	terling Improved (Anti-Friction)	
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	Claw, Nos. 1 2 3 9 doz 7.75 8.50 9.25 Lathing, Nos. 1 2 3 9 doz 7.50 8.50 8.50	I
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ľ	Shingling, Nos. 1 2 3	
2	Lathing, Nos. 1 2 3. P dos & & & & & & & & & & & & & & & & & & &	l
1	Nos. 56 7 8 # dos 16.00 18.00 20.00 22.00	I
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I	Shingling, Nos. 1 2 3 # doz \$11.00 \$10.00 \$10.00 Lath, Nos. 1 2 3 # doz 10.50 10.00 9.50	
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1	Lathing, Nos. 1 2 3 P dos 7.00 7.50 8.00 nderhill's dls 20 % Shingling, Nos. 1 2 3 P dos 7.25 \$1.00 \$8.75	
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-	Claw. Nos. 1 2 3	
	Broad, Nos. 2 3 4 P dos 11.00 13.00 14.50 Hay Knives. 109.00 P dos 650 18.00 19.50 Lightning. P dos \$20.00 net "adsworth". dis 30 %	
0	Adsworth's dis 30 % Hinges. ate, Western W dos \$6.25, dis 60&10 %	
	Adsworth	
1	Automatic H don tra to die mare	ſ

	Wrought Strap and 1, list Dec. 20, '77dis 60&1256	×
	Providence Plate Over 10 in. 15% 2 dis 40% 10 Screw Hook and Strap 8, 10, 12 in., 110 dis 40% 10 10 10 10 10 10 10 10	18
	Wrought Strap and T, list Dec. 20, '77 dis 6021256 Providence Plate { o to 10 in. 11c \$\psi\$ is \$\frac{1}{2}\$ in \$\frac{1}{2}\$ is \$\frac{1}{2}\$ in \$\frac{1}{2}\$ is \$\frac{1}{2}\$ in \$\frac{1}{2}\$ is \$\frac{1}{2}\$ in \$\frac{1}{2}\$ is \$\frac{1}{2}\$ in. in \$\frac{1}{2}\$ in \$\	%
	Solid Shank C S.	2
	Hoes. 15	*
	Planters' dis 35 @ 40 Scovili Pattern dis 25 @ 30 Handled Solid C. S. Shank dis 35	150 EK 150
	Planters', Handled	MMM
	Beltdis 70	21
	" Weston's, No. 1, \$10,00; No. 2, \$5,00 \$\rightarrow\$ doz dis 25 " McGill's, \$2,00 \$\rightarrow\$ doz	MARK
	Clothes Line, Hart's list	WWW.
I	Celling Harv's list	S ME WELL
ı	* Sargent's list dis 60% to 18 60% t	K M SH S
	Tassel (T. & S. Mfg. Co.). dis 40 Wrought Staples and Hooks and Staples. dis 75 "Staples, Stanley's list. dis 40	26.26.26
	Wire Screw Hooks and Eyes dis 7,52 to Grass dis 40 Whiffletree—Patent dis 40@45	2000
	Benen	A VA
	Brass dis 60&10&20 Horse Nails Nos. 5 6 7 8 9 10 Ausable 34 b 30 27 27 25 24 23 22 22 Finished Polished 1 21 28 26 26 25 24 23 22	8
	Finished	4
	Globe (New list). \$ Nos. 5 0 7 8 9 10 North Western Elvilled.	t
l	National, Pointed and Polithed Park Fin.	1
	Putnam Hammer, P't'd 26 23 21 20 19 18c ne Vulcan P't'd & Blued. 26 23 21 20 19 18c ne Horse Shoes.—Burden. 28 keg \$4.025	t
	B. I. Horse Shoe Co., Perkins' Improved Light. Medium and Heavy	(0.0)
	Perkins' Snow Reg 5.02 The Boston Horse Shoe. Reg 5.00 Toe Awis, Chisels, &c.	9
	National ** \$\psi \text{doz} \\$6.50 \text{dis ro}\$ Novelty Ice Breakers.	
	Duniap's Ring Picks	100
	Perkins' Snow # keg 5,005 The Boston Horse Shoe # keg 5,005 Lee Awls, Chisels, &c. # keg 5,005 American Ice Chisel # doz \$6,50 ne National # doz \$6,50 dis rowelly lee Breakers # doz \$6,50 dis rowe	t
	Kitchen Ice Tongs. \$\pi\$ doz 2.25 ne Kettles. \$\pi\$ to 13 inches inclusive \$\pi\$ b 35c ne	6 1
	Kettles. \$\psi\$ dog 2.23 ne ettles. \$\psi\$ dog 1.25 to 13 inches inclusive \$\psi\$ b 35 ne Brass, 1 graper than 13 inches \$\psi\$ b 40 c ne Enameted	
	" Bread Hay and Straw—" Wadsworth's" dos \$1.50, dis 15	
	K nobs Carriage (Jap'd Soc. # gross) dis 6o&10	8
	Door, Mineral Por. Jap'd Plated	. 1
	" Plated	
	Ladies. dis spâto 5 Meiting - Hart's. dis spâto 5 dis soâto 5 Meading dis soâto 5 Meading dis soâto 5 Meading dis soâto 5 Lanterns. Monroe's Patent 1/2 doz \$4.00, dis 20 5 Lanterns. No. 6 Monroe's Patent 1/2 doz \$4.00, dis 20 5 Meading No. 6	1
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	Tubulan No a fraget No a frage)	1
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	Hurricane. With Guards, 500 extrn. 10d Hurricane. With Guards, 500 extrn. 10d Peerless. No 5, \$\forall \text{ dos \$1.75}, \text{ dis 10\$ for 5} \) Peerless. No 5, \$\forall \text{ dos \$1.75}, \text{ dis 10\$ for 5} \) Extra \text{ dis 10\$ for 5} \) Extra \text{ dis 10\$ for 5} \) Police. Small,\$\text{\$9,00}; \text{ large,\$\text{\$\$1.00\$}, \text{ dis 10\$ for 5} \) Police. Small,\$\text{\$9,00}; \text{ large,\$\text{\$\$1.00\$}, \text{ dis 10\$ for 5} \) Police. Small,\$\text{\$9,00}; \text{ large,\$\text{\$\$1.00\$}, \text{ dis 10\$ for 5} \) Enterprise Mfg. Co	S CSSSSVS 645 EC B
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	### Hurricane With Guards, 500 extra; 10d ### Peerless No 5, \$\psi\$ doss \$1.75, dis 25, 5 ### Peerless No 5, \$\psi\$ doss \$1.75, dis 10\text{21.5}, 25 ### Peerless No 5, \$\psi\$ doss \$1.75, dis 10\text{21.5}, 25 ### Perlens All 10\text{21.5}, 25 ### Perlens All 10\text{21.5}, 25 ### Pelline Small, \$7,50; Med., \$9,00; Large, \$1.20, dis 10\text{21.5}, 20 ### Pelline Small, \$7,50; Med., \$9,00; Large, \$1.20, dis 10\text{21.5}, 20 ### Perlens All 10\text{21.5}, 20 ### Large All 10\text{21.5}, 20	S CRESSPS 448 EC E N CRS R CENNVNEN MADES SO H
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tio %	Plaiting Machines
210 %	Crown Plaiting Machines
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.net	Bailey's "Victor" "dis 25&10 % Bailey's "Victor" "dis 25&10 % Defiance Adjustable, new list
15 %	D. R. Barton Tool Co
30 % 40 %	Plane Irons, Butcher's
30 % 35 % 35 %	** Auburn Tool Co.'s
35 % 30 % 25 %	D. R. Barton Tool Co
10 %	Spear & Jackson's \$5.00 to £ gold Sandusky Tool Codis ro&10 \$
40 % 25 % 70 %	"Sandusky Tool Co. dis 10&10 § Pliers and Nippers. Button's Patent. dis 3345 g Hull's Patent Nippers, No. 1, \$15; No. 2, \$21 \(\text{P}\) dos, dis 235 Humason & Beckley Mfg. Co. dis 3345 g dis 3045 g Gas Pliers. dis 30610 g Eureka Pliers and Nippers. dis 25 g Eureka Pliers and Nippers. dis 30 g Eureka Pliers and Nip
10 % 25 % 10 %	Humason & Beckley Mfg. Co. dis 33½ % Gas Pilers dis 30% 6 dis 30% 6 % Eureka Pilers and Nippers dis 30% 6 dis 30% 6 %
20 %	Russell's Parailel. dis 25 % P. S. & W. Cast Steel. dis 30 % Plumbs and Levels.
10 %	Disston's
10 %	Non-Adjustable dis 60&10 g Chapin's dis 60&10 g Standard Rule Co.'s New Adjustable dis 60&10 g Non-Adjustable dis 60&10 g Johnson's Patent Adjustable dis 60&10 g
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40 % 10 %	Fletcher Post Hole Augers
45%	Fletcher Fost Hole Augers
,,	tt Camptour II Doglow and Clines 30 des
dis	Pruning Hooks. Disston's Combined Pruning Hook and Saw per dos \$18.00, dis 20 %
8 14	Pulleys 11.50 dls 20 5
25 % net	Hot House and Tackle. dis 66% dio % Jap'd Screw. dis 66% dio % Brass Screw dis 66% of the following street dis follows.
net net	Jap'd Side. dis 66% & 10 Clothes Line. dis 66% & 10 %
net	S 19 7 Swing and Shide (T. & S. Mfg. Co) dis 3236 S
net pa½	Douglas Cistern, etc
236 236 286	Rams
×0	Jap'd Screw dis 69%210 \$ Brass Screw dis 69%210 \$ Brass Screw dis 69%210 \$ Jap'd Stile, dis 60%210 \$ Jap'd Stile, dis 69%210 \$ Jap'd Stile, dis 69%2
net 10 %	" Bemis'
10%	Railing Door, Wrought Brass # B 4ce dis 10 g "Iron, Painted # foot cc. dis 55&10 g Barn Door, \$6, \$6, and \$6 inch dis 75&10 g "Raikes, Cast Steel dis 70 inch dis 75&10 g
10%	Barn Door, 15, 54 and 25 inch
net net	Rnkes, Cast Steel. 8 10 17 14 16 teeth. \$ 5.00 5.75 6.50 2.25 8.00
net	Malleabledis 15 %
net 5%	10 12 14 teeth.
5%	Genuine Emerson dis 20 % Badger's Emerson dis 20 %
o %	Evans dis 25 % Evans dis 40 % Imitation Emerson # dos \$2.75, dis 40% to 5
0%	Dadger's (not Emerson) dis 2 \sigma Evans' dis 20 \sigma Evans' dos \$2.75 dis 40 \star 10 \star Hunt's dis 20 \star dis 20
5%	Saunder'sdis 10 @ 15 % Rivets
ks.	In bulk, new list of Jan. 10, 1878
0%	Nos 7 8 9 10 11 12 13 14 15 10 10 1490 500 520 540 550 180 600 650 700 Rivet Nets
0%	Saunder's dis 10 @ 15 %
0%	Stair dis 50 % "American Patent dis 33½ %
o %	Barn Door, Sargent's list
5%	Stair
200	"
0%	" Late Yarn \$\psi\$ 12\\\ \text{for}\$ 13\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
2 2	Sisai
et .	" Hay Rope
et :	Stanley dis dis solt 10 % Standard dis solt 10 %
8	Willis, Thrall & Son dis 50&10 %
7	Stearn's dis 40&10 \$ Component Com
et	Tailors'. # doz \$19.00 net
MMM M	Sand Paper. Bander & Adamson's Flint, co to 134\$4.25 \$\pi\$ ream }
X	2, 2½ & 3. 4.75 F ream dis
N N N	New England, same list as B. & A. Flint dis 15@20 %
20.00	Sask Cord.
et	White Cotton
PRINCIPAL INC.	Raw Hidedis 25 % Sash Locks. Clark's No. 1 & rocks.
% % %	Clark's, No. 1, \$10.00; No. 2, \$8.00 per gross. dis 40@45 5
in i	Norwich
Man	Sash Weights.—Solid Eyes
5 1	Miles
MMM	Enterprise Mfg. Co
2000	Spear & Jackson's
5	" Mill dis 30 % " Cross Cut dis 20 % " Hand Panel Nr. &c dis 20 %
3 I	I. W. Peace's Circulars dis 25 % Mill, Gang and Mulay dis 25 %
S I	E. M. Boynton's Lightning, Cross Cutsdis 20 % One-Man, all lengthsdis 40% 5 %
8	Buck Saws (X Bar). P doz \$15, dis 40&10 % } Biliet Webs. P doz \$10, dis 40&5 %
× 1	Wheeler & Clemson Mfg. Co.'s Handdis 20 % Cross-Cut
1	Mill dis 20 Cross Cut dis 20 Cross Cut dis 20
N N N	Per dos. \$10.00
NA NA	Red. Polished and Varnished
N I	Soynton's Patentdis 40 % stillman's Genuine
rt C	Saw Rods \$10 list dis, 10\$ fo \$\frac{3}{5}\$ Saw Sets. \$00 patcon's Patent \$10 at 9.5 \$1 lilman's Genuine \$10 at \$4.25 net \$10 mars Genuine \$10 at \$4.25 net \$10 mars Genuine \$10 at \$4.25 net \$10 mars Genuine \$10 at \$5.25 dis \$2.5 \$10 mars Genuine \$10 at \$5.25 dis \$2.5 \$10 at \$5.25 dis \$2.5 dis
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t B	Scrapers. ox, I Handle
S D	Scrapers
S B	hip (common)per dos \$3.co net " (Providence Tool Codis 10 %

March 28, 1878.		THE IRON AGE
Screw Drivers. Hart, Bliven & Mead, new listdis 45&to \$	Well Wheels.—Revised listdis 60&10 %	No.28 .49 .53 .00 B
Hart, Bliven & Mead, new list. dis 45&to 5	Brass and Copper List of Jan. 1, 1878 dis 10 % Bright and Annealed Nos. o & 18. dis 57 6 @ 60 %	NO.31
Buck Bros. Buck Bros. Buck Bros. Buck Handlesdls 34.8 Stanley Rule & Level Cos., Black Handlesdls 34.8 Sargent & Co.'sVarnished H'ledls 48.05 Screws. Screws.	Coppered	No.32
Flat H'd Iron list Sept. 1, '75	Tinned, Nos. o to 18	Fancy Wire not less than for \$\bar{V}\$ is advance of Round Wire.
Round Head Brass. list Sept. 1, 75. dls 40 % Brass and Silver Capped dls 40 % Japanned. list of Plain Screws. dls 45 %	Annealed Fence, 5 os. 8 and 9	Wire, Strain too tess than 100 to any and the strain 2 feet lengths, 450. Wire straightened and cut, smaller than No. 8, and not less than 2 feet lengths, 400.
Sargent & Co.'s. Screws. Screws. Screws. Screws. Screws. Sist H'd Iron list Sept. 1, '75. dis 60 % Round Head Iron dis 50 % Flat Head Brass, list Sept. 1, '75. dis 40 % Flat Head Brass, list Sept. 1, '75. dis 40 % Brass and Silver Capped dis 40 % Brass dis 40 % B	Non. year section of the Oct of Oct	not less than 2 feet lengths, 40c. Wire and Rods less than 2 feet lengths, special rates. Twelve cents per b extra for spooling on 1 b spools.
Bench, Iron. dis 20 % Bench, Iron. dis 5,52 io % Wood, Beach. ₩ doz \$,00, net	Stebs Steel Wire. \$7.00 to £ gold Japanned Barb Fence. \$7.00 to £ gold Japanned Barb Fence. \$7.00 to £ gold Japanned Barb Fence.	Twelve cents per h extra for spooling on 1 h spools. O
Hand dis 20&10 \$\frac{1}{2}\$ 0.82 \(\text{in } \frac{1}{2}\$ \) dis 26&10 \$\frac{1}{2}\$ Hand Rail, Sargent's dis 60&10 \$\frac{1}{2}\$	Galvanized Steel Music Wire, Nos. 12 to 27 Steel Music Wire, Nos. 12 to 27 Steel Music Wire Gis 805,20 5 Clothes Line Wire. Galvanized Weell 55 66 436 net	High Brass Scrap
Jack, Bell Bottom	Wire Cloth. Clinton, green or drab, by the roll. per sq. ft. 334c net Wrenches. American Adjustable	Turnings Filings and Chine half the price of Sugar
Blood's German Steel, Grass? doz \$10.00 Cast, # doz 11.00 Sliver # # doz 12.00 dis \$1.50	Baxter's Adjustable "S," New list May 1, '76dis 20 % Diagonal, dis 20 % Collins & Co.'sdis 20 % dis 45 %	Plain to No, 20 inclusive, above 14 in. to 3 in
Cast " dos 14.00 (15.00) Excelsior and Granger. # dos 11.00 dis \$1.50	Coes' Genuine	Number. Nos. 24, 25, 26, four cents advance on List for each V. Number.
Sash (T. & S. Mig. Co.) dis 25	Clinton, green or drab, by the rollper sq. ft. 2%c not Wrenches, American Adjustable "S," New list May 1, 76. dis 20% Baxter's Adjustable "S," New list May 1, 76. dis 20% Colling on the roll of th	Above No. 26, special rates. Plain, 14 inch
scythe Snaths. dis 25 % Shenrs and Scissors. dis 45 % American dis 45 % 5 %	Tatt's Pattern dits 75.8.10 T Davis' Patent Duplex new list, dis 25.7 Bemis & Call's Patent Combination dis 25.7	All Mandrel Drawn Tubes, 5 cents advance on List Prices, Pancy Tubing to No. 20
Cast Steel. dis 75 & 10 % of 170 m. dis 45 % Seymour's Straight Trimmers. dis 55 % of 170 m. dis 45 % of 170	" Merrick's Pattern. dis 25%2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Fraces, 48c Fancy Tubing to No. 20. 48c English, Scotch and Extra Patterns Fancy Tubing to No. 20. 53 Tubing Sawed or Cut 2 to 4 feet long, 2 cents ad-
Pruning \$\frac{1}{2} \text{doz} \frac{8}{4.75} \tilde{\text{@ \$\frac{4}{3.75}}} \text{nets} \text{nets} \text{doz} \text{84.75} \text{doz} \text{84.75} \text{doz} \text{83.75} \text{Tinners} \text{doz} \text{83.75} \text{doz} \text{doz} \text{83.75}	Alker Pocket (Bright)	vance on List. Add to 2 cents & cent for each additional cutting under 2 feet.
Sheep Shears. Ball's Pat. Solid Steel Bent	Crown No. 2. "No. 136 71.00 54.00 No. 236 63.00	All Mandrel Drawn Tubes under % in., 25 cents per pound advance. ZINC TUBING.—net. Plain
Fer dos.	No. 3 65,000 Eureka, No. 1. 57,000 Novelty, No. 10, with Cog Wheels 00,00	Fancy
Patent Roller dis 2582 5 Hatfield's dis 2582 5 Hatfield's dis 5082 5 Russell's Anti-Friction dis 508 2 5	Excelsior, No. A, with Folding Bench. 84.00 No. E, for Set Tubs. 60.00 Keystone No. I. Wood Krame, no Gene.	4 Per cent
Sheaves Shiding Door, M. W. & Co., list. dis 35&10&2 \$\frac{1}{2}\$ Shiding Door, M. W. & Co., list. dis 50&2 \$\frac{1}{2}\$ \$	" No. 2½" 63.00 Eureka, No. 1 95.00 Eureka, No. 1 95.00 Novelty, No. 10, with Cog Wheels. 95.00 Novelty, No. 10, with Folding Bench 95.00 No. 2, 10 No. 2, 100 No. 2,	15 1.25 16 1.40 18 1.55 N
Shovels and Spades	" No. 3 71.00 No. 2½ 00,00	18 STEEL.—Duty: Bars, Ingots, Sheets and C.15 STEEL.—Duty: Bars, Ingots, Sheets and C.15 valued at 7 cents ₩ B., or under, 244 cents; over, 7 cents, and not above 11, 3 cents ₩ B; over 11, 34 cents ₩ B. and 10 % ad val. Railway Bars, 142 cents ₩ b. Railway Bars, in part Steel, cent ℀ B. Provided, that Mctal cemented, cast or made from Iron by the Bessencer or puentmatic process, of whatever form or description, shail be classed as
Rowald Save Co.	Stamped Tinware. Common Stamped Ware	cents, and not above 11, 3 cents & B: over 11, 3 cents & B, and 10 % ad val. Railway Bars, 13 cents & B. Railway Bars, in part Steel, 1 cent & B. Provided,
Remington's (Lowman's Patent)	METALS.	that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as
Oxford Patent dis 40 % Shovels and Tongs.	IRON.—Duty: Bars, 1 to 156c. W B: Sheet, Band,	Tool
Polished Steel dis 50&2 \$ Silates.	IRONDUTY: Bars, i to 15%c. F b; Sheet, Band. Hoop and Scroll, 15 to 15%c. F b; provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Fig. \$7 F ton; Polished Sheet, 3c. F b; Wrought Scrap, \$8 F ton; Cast Scrap, \$6 per ton. Bailroad, 5c. F ton \$8.8 ton; Cast Scrap, \$6 per ton. Bailroad, 5c. F ton \$18.8 co \$18.5 c. F ton \$1.8 c. \$6 \$15.5 c. F ton \$1.0 c. \$6 \$17.5 c. \$7 ton \$1.0 c. \$6 \$17.5 c. \$7 ton \$1.0 c. \$6 \$15.5 c. \$7 ton \$1.0 c. \$6 \$1.0 c. \$7 ton \$1.0 c. \$7 t	Indianogeneous
Less than a casedis 65&10 %	Railroad, 70c. \$\Pi\$ too Bs. Boiler and Flate, 13gc. \$\pi\$ B. Pig Iron—AMERICAN. Foundry Mo. 1	File. 96 Sheet 11 97 Saw Plate, mill and mulay 14 @ 165%
Spokew. North Carolina Handle Co	" No. 2.	" gang and X cut
Defiance Metallic	Glengarnock \$COTCH \$COTCH \$CO	Tool, extra fine
Figure F	Rails, Iron, at mill. P ton \$32.00 @ 37.00 Steel, " Iton \$3.00 @ 44.00 Old Rails. P ton 18.00 @ 19.00	Gun or Homogeneous. P B 12 66 16c Euglish Steel, —Payable in gold, net. Best Cast. P B 15 156c
Douglass' # dos \$9,00, dis 20&10 % Spoons. Tinned Iron	Scrap. Wrought Scrap, from yard # ton 22.00 Bar Iron, from Store.	"Extra Cast. † b 1645c Round Machinery, Cast. † b 10c Swaged, Cast. † b 18c
Basting dis 2e&10 % Britannia dis 6 % Derby Silver Co dis 40 % 5 % 5 %	Wrought Scrap, from yard Fton 22.00 Common Iron: Stron, from Store. \$\fo \(2 \) in round and square	Best Double Shear. F b 15½0 Blister, 1st quality. F b 130 German Steel, Best. F D 110
Doardman S S S S S S S S S S S	Renned 1ron :	Sheet Cast Steel, 1st quality. # B 190 Sheet Cast Steel, 1st quality. # B 1546C
Hall & Elton dls 40&5 % Holmes, Booth & Haydens dls 40& 6 German Silver (Hall & Elton) dls 30& 5	Rods—56 and 11-10 round and square	ANTIMONY : Pig & W no ms : old Lead, 156 c
German Silver (L. Boardman's Sons)	Ordinary sizes. Sheet Iron. Common R. G. American. Nos. to to 20. American.	Pipe and Sheet, 24c P b
Note	American. American. American. 2	English
Stone. W B 6c dis socios	27. \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Pipe
Stocks and Dies	27	3d quality P is 13/6c
Slips. No. 1, # 10 25c, not Arkansas Stone. No. 1, # 10 6cc, net No. 1, # 10 8cc, net Slips. No. 1, # 10 8cc, net	Patent Planished. # 5 A, 104c; B, 04cc Russia, Nos. 8 to 16. # 5 Li (# 114c American Cold Rouled. # 5 Li (# 114c	N. P. U
Grindstones, Family, Loring's dis 10 % Stove Polish. Joseph Dixon's	OPPER.—DUTY: Fig. flar and Ingot, se; Old Copper, 4c & b; Manufactured (including all articles of which Copper is a component of chief value), 45 % ad	and Pigs free. Banca, subject to duty of 10 per cent. Banca. % B 10 currency Straits. # B 17 @ 18 currency
Gem.	per, 4c # B; Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem. American Ingot	I C 10x14) Prime Charcoal
Steel	P sq. ft. Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz. F sq. ft.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Try Squares and T Boveis. dis 45%10 % Star Try Squares and Boveis. dis 35 % Disston's Try Squares and T Boveis. dis 45 %	Braziers' Copper, 10 oz and 12 oz., 12 sq. ft 2 m 32c Lighter than 10 oz. 12 sq. ft. 12 m 34c Circles less than 84 in. in diameter 2 m 3 m 31c	14320 Frinte Charcolal 6.75 (9.00 14320) 14320 14320 150 160
Winterbottom's Try and Mire	Segment and Pattern Sheets 9 B 34C Locomotive Fire Box Sheets 9 B 26C Sheets 9 B 26C	COKE TIN PLATE. Best. 3d quality. Ordinary.
State Stat	Bolt Copper 9 5 38c Copper Bottoms 9 5 38c No Copper is Sheathing except 14x48 inches and not	1 C 12X12 \$6.25 6.00 5.50 @ 5.75 1 C 14X20 TERNE PLATE.
Carpet, Am. and Swedesdis 20 Leather Headnet	to exceed 34 oz. to the sq. ft. TINNING. 14x48, by the case	Prime Char: C 14xx0\$6.00 & \$6.12\cdot 6.25 \cdot 5.75 \cdot 6.36\cdot 6.36 \cdot 6.
" Copper 58c, net to 8rads, Hair Weight. dis so 4. %	For timing both sides, double the above amount. O'NEILL'S PATENT PLANISHED COPPER.	X 20X26
### ### ### ### ### ### ### ### ### ##		SOLDER
25 20 17 15 13 110 W Bnet Double-Pointed Tacks	7 in., 14X52. 8 in., 14X56. 9 in., 14X60. 14 and 16 oz. and heavier. # n 36c. By the case. # n 35c (And all sizes not over 20 in. wide.)	SPELTER
Common and King	L4 and 16 oz. and heavier. Son. Whee. 12 and 16 oz. and heavier. Son. Son. Son. Son. Son. Son. Son. Son	2½0 F B
American Flask and Cap Co	Brown & Sharp s Gauge the Standard for Meta; Old English Gauge the Standard for Wire. BRASS MANUFACTURERS' PRICE LIST.	DemonStack Old Watels &c.
Ten Trays.	Cash prices for Holl and Sheet Brass. For less quantity than 100 Bs. add 3c F B. High Rass. High Rass. All Nos. not thinnes than to No. 28, wider than 2 in.,	Canvas inen (Dealer's Selling Price.)
American rea tray Co	All Nos. not thinner than to No. 28, wider than 2 in., not wider than 14 in	Paper Stock, Old Metals, &c Cealer's Kelling Price. 4
All Iron	All Nos. not thinner than to No. 28, wider than 2 in, not wider than 1; in	No. 2. 334 60 Seconds
Toe Calks. Winsted. Transers Tools and Machines. Machines (F. S. & W.). Joseph Grand Machines. Machines (F. S. & W.). dis 16225 \$ Joseph Grand Machines. dis 16225 \$ Joseph Grand Machines.	5/cc. w is advance on each No. above Nos. 28 to 38, inclusive. All Brass thinner than No. 28 is Platers' Brass, at 500 Sheets 24.48, and all sheets cut to particular stress.	Gunny bagging 3% 6 Jute Butts 3 6 3% Kentucky bagging 5 6
Tools (F. S. & W.)	** ** ** ** ** ** ** ** ** ** ** ** **	Waste paper and scraps
" Blake's Patent	Gircular Sheets, in diam. from 4 in. to 14 inclusive. 39c	Oakum junk, No. 1. 534 @ 534 @ 534 Grass rope. 336 @
** Round Wire # doz holes, 16 @ 18c, net Round Wire # doz \$1 50, dis 10 % Cage " # doz \$2.50, dis 10 %	66 66 67 30 67 30, 67\$50; 66 67 40 181	White collar cuttings, all paper
Rat, "Decoy"per doz \$10.00, dis 10 %	4c ♥ B more than High Brass, Gilding Metal, Sc ♥ B more than High Brass.	Hard White Shavings, No. 1
Trawels. dis 10 ≤ Lothrops Brick and Plastering. dis 20 ≤ Disston's Brick and Plastering. dis 20 ≤ Peace's Plastering. dis 20 ≤ Clement & Maynard's dis 20 ≤	Gliding Metal, Sc \(\psi \) is more than High Brass. IB Bars	Mixed Shavings, part white
Clement & Maynard's dis 20 5	Metal in width 2 in to 16 in. to No. 28, inclusive, 1c. P b advance. Metal, in width 2 in to 1 in., thinner than No. 28, 20. P b advance.	" Heavy 34 6 374 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Rutter and Cheese	Metal, in width 1 in. to 1/2 thinner than No. 28, 30 W madvance. Metal, in width 1/4 in. to 1/4, inclusive, not thinner than	Prints. 156 @ 2 Pure Manilas
	advance. Metal, in width ½ in. to ¼, inclusive, not thinner than No. 28, 2c. F B advance. Metal, in width ¼ in. to ¼ thinner than No. 28, 5c. F B advance.	Commons
* Wilson's	B advance. Metal, 4 in. in width and less, icc. V m advance. Any of the above width acut to particular lengths, add 7c. W m. GERMAN SILVER MARKET METAL AND WIRE.	Bogus Manilas and Hardwares
ulcan Pattern \$\$.50 each, net \$\$\footnote{V}_{\text{isems}}^{\text{isems}}\$ Box, Trenton \$\$40 to 160 lbs. 12\footnote{c}, net \$\$\text{wilson's.}\$ \$\$\footnote{\text{jootnote}}\$ to fo lbs., 12\footnote{c}, net \$\$\text{wilson's.}\$ \$\$\footnote{\text{jootnote}}\$ to to lobs., 15c \$\$\text{cand over, 2c.}\$ \$\$\text{isems}\$ Crown" (A. H. Hildeks) 40 to to lbs., 15c \$\$\text{currency, dis 20}\$ \$\$curren	Market Metal. Wire.	Copper Rottoma
Wilson's	10 66 44	Yellow Metal. 13
Merrill's	more than 16 Bs., \$2.25 \ B.	Tea Lead. 6 294 Zinc. 6 4 Pewter, No 1 10 6 No. 2 8 6
Huiraio. dis 25 Sievens Gis 25 Sievens dis 25 Sievens Gis 25 Saw Pilers, Eonney's w dos \$24,00, dis 26 25 Gis 26	22 in., and 22. W D on each No. thinner than Nes. 26 to g6, inclusive. All German Silver thinner than No. 26 is Platers. at	Wrought Iron. per ton \$18.00 Machinery Iron per ton 12.00
" Stearn's	German Silver Scrap one-third less than net price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap.	Grate Bars
Ventilators. Protective (upper) per foot, \$1.00	Gild'gand	Paints, Oils, &c.
VV Smith's Patent	No.0 to 20	Black Lamp, Coach Paints. P B 200 Ordinary. Flory Drop, fair. P B 200 Fl
Washers,—See Nuts and Washers. Weather Strips. Weather Strips.	NO.24	Blue, Prussian, fair to best
25 \$	R9.27	1 In Oil

			, , , , , , , , , , , , , , , , , , , ,	3
.00 Blue Ch .69 Uli .69 Brown,	inese dry ramarine spanish an Dyke , 60	18 @ 30t	Asphantum Benzine Chaik Block Bryer, Patent, Am'n Frostings Glue, White Glaster Glaster Glaster Gamar, Shellac, English Gamar, Shellac, English Gur, Shellac, English Gur, Shellac, English Gur, Shellac, English Gar Pumic Stone, selected Lur Putty, in bladders Sin bulk Rotten Stone, sort, Engls Spirits Turpentine Whiting Spanish	dries.
.81 Carmine Green, C	an Dyke	ombination price	Chaik Block Dryer, Patent, Am'n	asa't cans, roise : keg
e in Dat	Paris	od 250; best, 300 300; " 450	Glue, White	.33 @
tron Pai	Red. Brown	₽ 10 2/40 ₽ 20 20 ₽ 11/40	Glaziers' Points, Zinc Gum, Copal Damar	
66 66 54	Ground in Oil, Bright Red	₩ 10 30 ₩ 10 51/90 ₩ 10 50	Litharge, English dar	k
Mineral Orange	Paints	# m 4560 # m 60 154 @ 40	Putty, in bladders	11 j.ss
Red Lea	d, American English etian (N. C.) dry	9½e gold	Rotten Stone, soft, Englst Spirits Turpentine	1
" Ind Rose Pir	ian dry asst'd cr	ns, 11c; kegs, 8c	GI PRENCH WIT	NDOW GLASS.
Sienna,	American, Raw Burnt	10 (a) 16 (a) 200	Prices current Single Thick.	per box of 50 feet. .—discount 60 %
Umber,	Burnt. " in oil	11 (a) 15 (a) 250 4 (a) 80 9 (a) 13 (a) 160	81ZE8. 6 x 8 to 10 x 15	18t. 2d. 3d. 4t
Vermilli	" in oilon, Chinese	10 (at 16 (at 18c	11 X 14 to 16 X 24	
White I	American, Common	1.10, gold	13 x 22 to 20 x 30. 15 x 35 to 24 x 30. 26 x 28 to 24 x 35. 26 x 37 to 26 x 34 x 40. 26 x 46 to 30 x 50. 30 x 55 to 30 x 54. 30 x 56 to 34 x 56. 34 x 56 x 34 x 56. 34 x 56 x 34 x 66. 35 x 56 to 46 x 66.	13.00 11.50 0.75 14.50 13.25 10.75 15.00 14.00 11.25 16.00 14.50 12.00
White, I	Paris, English, prime	.in bbls. 2 @ 2 ¹ 90	30 X 56 to 34 X 56	16,00 14,50 12,00 17,25 15,50 13,50 18,25 17,25 15,00 20,75 18,78 17,25
Yellow (" Vermentasst'd co	ans, 11e; kogs, se in casks 11ge	Double Thick.	20.75 18.75 17.25 -Discount bolk 10 %
Zine Wh	in oil	14 @ 18 @ 250 83ge	6 x 8 to 10 x 15	. \$12.00 \$11.00 \$10.00 \$ 13.75 12.50 11.75 1
14	French (Paris)in oil	10½ @ 11½c	11 X 14 to 16 X 24. 18 X 22 to 20 X 30. 15 X 36 to 24 X 30. 20 X 28 to 24 X 36.	17.25 15.75 14.00 19.75 17.25 14.50 21.00 18.50 15.75
Linseed,	Oils. Raw, in casks and bbls	. F gal. toc @ 610	18 X 22 L0 20 X 20. 15 X 36 L0 24 X 30. 20 X 28 L0 24 X 36. 26 X 36 L0 26 X 36. 26 X 36 L0 36 X 44. 26 X 46 L0 20 X 50. 30 X 52 L0 30 X 52. 30 X 52 L0 30 X 52. 30 X 50 L0 34 X 50. 36 X 60 L0 44 X 60. Signa above to 5 C 8.	23,25, 21,25 17,25 24,00 22,50 18.00 25,75 23,25 19,25
Whale,	rude	bbl, 620 (# 650 bbl, 700	34 X 56 to 34 X 56. 36 X 60 to 40 X 60.	27.75 25.00 21.75 29.25 27.75 24.00 33.45 30.00 27.75
Cotton	Raw, in casks and bbls. Bolled, "rude. "rude." sleached Winter" "ableached. eed, Crude. Southern Yellow. White. t, Winter. Lubricating.	bbl, 650 bbl, 550	Sizes above 40 x 60\$10.0 five inches. Au additional to per cer	to ber now extra roll 64
Neatsfoo Natural	t, Winter. Lubricating.		An additional to per cer Glass more than 40 inches inches in length, and not r inches, will be charged in	wide. All sizes above naking more than 81 uni the 84 united inches brack
	Bolts, Nut	s, Was	hers, Screv	Nails
PANTILED OF THE PARTILED	THE FLET The best, the cheap Made from the best cas and is run with less pow sharply through grass or Retail price, not sharply through grass of the Retail price, not sharply the Retail price, not sharply through grass of the Retail price, not sharply the Retail price, not sharply the Retail price, not sharply through grass of the Retail price, not sharply through gr	cest, the most dut t steel; will borever; works reading root sods with et, \$3.50 each. Trade	POST HOI rable and the handiest three holes while any of ily in clay, sand, gravel of out the use of shovel or s to the trade, \$3.00 each. SPECIALTIES. Free Nails, National I	VS, &C. LE AUGEF Earth Auger in Mark her Auger is boring or r muck soil, and will of pade to start it. Less 20 per cent.
160	THE FLET The best, the cheap Made from the best cas and is run with less pow sharply through grass of Retail price, not be the price of Retail price of Retail price, not be the price of Retail price of Retail price, not be the price of Retail price of Retail price, not be the price of Retail price of	CHER est, the most dut t steel; will bore rer; works readi or root sods with et, \$3.50 each. T TRADE , Putnam Ho so Nalls, Bur Providence I	POST HOI rable and the handlest three holes while any of liy in clay, sand, gravel or out the use of shovel or s to the trade, \$3.00 each. SPECIALTIES. Orse Nails, National I den Horse Shoes, Toe Ca (8), Anvils and Vise	WS, &C. E AUGEF Earth Auger in Mark her Auger is boring or r muck soil, and will op pade to start it. Less 20 per cent. Horse Nails, Buffa Walker Horse iks, Cast
PANTECO	THE FLET The best, the cheap Made from the best cas and is run with less pow sharply through grass or Retail price, no Retai	TRADE , Putnam Ho se Nalls, Bur Providence Bull Assortment. "ROYAL orders solicited.	special Brands—"KING	Earth Auger in Mark her Auger is boring of r muck soil, and will be padde to start it. Less 20 per cent. Horse Nalls, Buffa Walker Horse lks, Cast 25, OF THE FOREST,
PANTITEO ST. ASS	THE FLET The best, the cheap Made from the best cas and is run with less possible through grass of Retail price, not re	TRADE , Putnam Ho se Nalls, Bur Providence Bull Assortment. "ROYAL orders solicited.	special Brands—"KING	Earth Auger in Mark her Auger is boring of r muck soil, and will be padde to start it. Less 20 per cent. Horse Nalls, Buffa Walker Horse lks, Cast 25, OF THE FOREST,
PANTICO STA AN	THE FLET The best, the cheap Made from the best cas and is run with less pow sharply through grass or Retail price, no Retai	TRADE , Putnam Ho se Nalls, Bull Sieci, Bellow Il Assortment. "ROYAL Lorders solicited.	POST HOLE The property of the trade, \$3.00 each. SPECIALTIES. The Nails, National Indian Horse Shoes, To the Special Brands—"KING WOOD CHOPPER."	Earth Auger in Mark her Auger is boring of r muck soil, and will be pade to start it. Less 20 per cent. Horse Nalls, Buffa Walker Horse lks, Cast 18. OF THE FOREST,
PANTICO STA AN	THE FLET The best, the cheap Made from the best cas and is run with less pow sharply through grass or Retail price, no Retai	TRADE , Putnam Ho se Nalls, Bull Sieci, Bellow Il Assortment. "ROYAL Lorders solicited.	POST HOLE The property of the trade, \$3.00 each. SPECIALTIES. The Nails, National Indian Horse Shoes, To the Special Brands—"KING WOOD CHOPPER."	Earth Auger in Mark her Auger is boring of r muck soil, and will be pade to start it. Less 20 per cent. Horse Nalls, Buffa Walker Horse lks, Cast 18. OF THE FOREST,
PANTITOD STATE OF	THE FLET The best, the cheap Made from the best cas and is run with less pow sharply through grass or Retail price, no Retai	TRADE TRADE Putnam Ho Seel, Bellow Il Assortment. Todars solicited TASSITE SOLICIT TRADE Putnam Ho No Nalls, Bur Steel, Bellow Il Assortment. Todars solicited TASSITE SOLICIT TOTAL SOLICI	POST HOLE rable and the handiest e three holes while any of lily in clay, sand, gravel or out the use of shovel or s fo the trade, \$3.00 each. SPECIALTIES. Pres Nails, National I den Horse Shoes, Toe Ca A, Anvils and Vise Special Brands—"KING WOOD CHOPPER." RTERS BUILDING RTERS	Earth Auger in Mark her Auger is boring of r muck soil, and will be pade to start it. Less 20 per cent. Horse Nalls, Buffa Walker Horse lks, Cast 18. OF THE FOREST,
PRATICO	THE FLET The best, the cheap Made from the best cas and is run with less possible through grass or Retail price, no Retail p	TRADE , Putnam Ho steel, Bellow II Assortment. "ROYAL torders solicited."	POST HOI rable and the handiest three holes while any of lify in clay, sand, gravel or out the use of shovel or a for the trade, \$3.00 each. SPECIALTIES. PSE Nalls, National I den Horse Shoes, Nati	Horse Nails, Buffa Walker Horse Iks, Cast Soft THE FOREST,
PRATTEO	THE FLET The best, the cheap Made from the best cas and is run with less pow sharply through grass or Retail price, no Retai	TRADE , Putnam Ho steel, Bellow II Assortment. "ROYAL torders solicited."	POST HOI rable and the handiest three holes while any of lify in clay, sand, gravel or out the use of shovel or a for the trade, \$3.00 each. SPECIALTIES. PSE Nalls, National I den Horse Shoes, Nati	Horse Nails, Buffa Walker Horse Iks, Cast Soft THE FOREST,

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> Swede Spring Steel, specially adapted to Locomotive and Railway Car Springs. English Spring and Piow Plate Steel.

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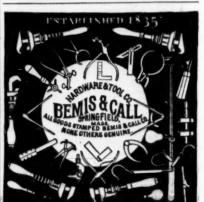
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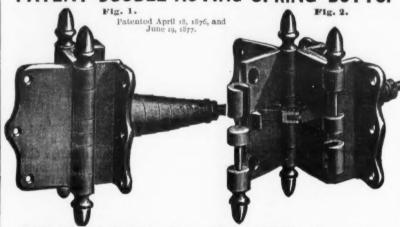
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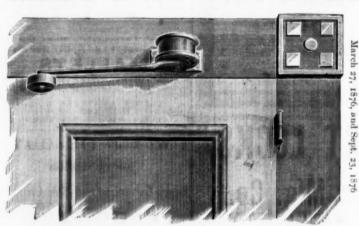
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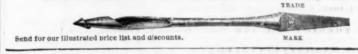
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Oval Iron.
% to 1¼ in 2.200 1½ in 2.500 % to ¾ in
Half Oval & Half Round \(\frac{1}{2} \) \(\text{in} \) \(\frac{3}{2} \) \(\text{io} \) \(\frac{1}{2} \) \(\text{in} \) \(\frac{3}{2} \) \(\text{in} \) \(\frac{3}{2} \) \(\frac{3}{2} \) \(\text{in} \) \(\frac{3}{2} \) \(\frac{3}{2} \) \
Sheet Iron, Com'n. Chare' No. 22 to 24, 3.30c
Wood's Putent Planished Sheet. sst quality (A)11c 2d quality (B)936c
Plate Iron—3-16 to 1/2 in. thick
 Nos. 14 to 20.

	IIs.
	d Brads.
rod to 6od	3d 4.00
84 in. 6,50 26 " 5,50 1 5,50	134 '4
	ing.
Tobacco Hhd.	34 in
	ing.
5d 3-50 (d 3-50	3d 4.25
Finishing. 7.50	1½ to 1¾ in
Casing and Box. and to 30d	34d
	3d 5.50 2d 6.25
Cut Spikes-All sizes	2.75
Each half keg	10 cents extra. 3.25
of a per cent. for cash, if re late of invoice. An abate	ce at fodays; or a discount mitted within 10 days from ement of 10 cents per keg

	TERMS -Note or acceptance at fodays : or a discount						
	TERMS.—Note or acceptance at 60 days; or a discount of 2 per cent. for cash, if remitted within 10 days from						
	date of invoice. An shatement of to cents ner bee						
	date of invoice. An abatement of 10 cents per kes allowed upon orders of 200 kegs or over.						
۱	Steel.						
ı	Square, Flat and Octagon Tool Steel						
ı	% to 2 in						
	5-16 and 21/2 to 3 in 140 3-16 and 51/2 to 6 in 190						
. 1	4 and 316 to 4 in150 5-32 in						
١	Single and Double Shear Natilers-Same as Tool.						
	Knife, Tap, Die, Mill Pick, Drill-Ordinary sizes 130						
1	Machinery Steel-Round.						
ı	% to 2 in						
ı	5-16 and 21/4 to 3 in 81/40 3-16 and 51/4 to 6 in 131/60						
1	4 and 3¼ to 4 in						
1	Cast Spring Steel. 136 to 3x5-32 to 3-16 in7360						
ı	1 to 4x14 to 16 1n 6160 36 to 136x5-32 to 3-16 ln8160						
	Agricultural Steels.						
1	Solid Cast Steel Plow, 4 to 16 by 3-16 to 36 in 70						
	"Iron Center Plow," 4 to 16x3-16 to 36 in 8e "Iron Back Plow," 4 to 16x3-16 to 36 in 836c						
١	"Iron Back Plow," 4 to 10x3-10 to 36 in						
ı							
1	Landside and Cultivator, C. S., in thick 916c						
١	Circular Plow Coulters, 5-32 to 34 in. thick						
1	Fork and Hoe70						
1	Horse Rake Teeth, to length 8c						
1	Finger Bar846						
J	Cutter Hars, C. S						
1	" German Spring Steel alZe						
1	Cornstalk Cutter beveled to length						
J	Planters' Hoe, C. S 9c						
1	Hoe, C. S						
١	Sheet Steela.						
1	German, 10 to 16 g Sc Common C'st, 17 to 20 g. 100						

et	Cornstalk Cutter beveled to length. 8e Planters' Hoe, C. S. 9e	1
et.	Hoe, C. S	Ι.
to	Sheet Steela.	
et	German, 10 to 16 g 8c Common C'st, 17 to 20 g. 10c	
et	" 17 to 20 g 110 Best Cast, 10 to 16 g 130	
	Common C'st, 10 to 16 g. 90 4 4 17 to 20 g140	1
	Rolls and Castings.	ľ
1%	Furnace, Floor and Straightening Plates 13(@ 20	
KC.	Housings and Castings not otherwise specified 214c	
18	Guide Plates 3 C	
et	Spindles and coupling boxes	
et	Sand Rolls and Pinions, large size	
et	small size3 C	
	Pipe Mill Castings	
et	Rolling Mill Castings under so the	0
et	Spur and Bevel Wheels, large	1
90	small 4@ 4ke	١.
et	Pulleys up to a inches	-
et	Over 30 inches	
et	Engine Castings, light	
38	" heavy	
	Chilled Rolls.	
15	6 to 7 in. diam., 7 to 20 in. long	
. 10	8 to 15 in. " 8 to 40 in. " 5 C	
-	15 to 24 in. " 15 to 72 in. "	
	24 to 31 in. " 72 to 108 in. "	
*		
	Heavy Hardware, Bolts, Screws, Nuts, etc.	
	Lewis, Oliver & Phillips, discount off Standard List.	1
73	Liewis, Oliver & Fullippe, discount on Standard List.	-

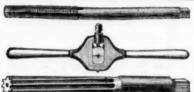
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	and W	asher Nu	s in lot	in 25 % box ts less than c Washers in	ne ke	xes, i	n si	ze,	ex.	
	Harrow	Teeth		***********					net	
	Cast Iron	n Was	hers	kers		314	C #	10	net I	
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	from b	est se	lected	Yokes and hickory, an patterns.	Doubl d irone	e Tre	ees. npl	mi ete,	ade in	
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1	comple	ete, Ir	ons all	Wrought		080	ch,	25C	net	
	comple	esteri	one all	Single Tre	e, Iron	led	h.	200		
	No. 3 Wa	igon !	Single	Wrought Tree, Iron	comple	te.	dis.	350	nec	
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	rule						ch,	50C	net	
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	Southers	n Ploy	E Donk	de Tree, Iro		eac	ch,	boc	net	
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	Wagon I	IS XU	ran Bo	HER-			in,	SOC	net	
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ч	12 in.	44	9-16	11	66	8	66		700 I	
1	14 in.	44	8-16	41	66	- 8	66		8oc	
ı		96	28	41	0.6	- 8			8oc	
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٠	29 800
	14 III. 79
	16 in. " 5a " 1 8 " - 1.00
	1810, " 96 " 1 8 " 1.10
	20 in. " 5n " 1 8 " . 1.20
	sc F set for each additional inch over 14 inches. All
	lengths made.
	Chains, Straight or Twist Link.
	5-16
	94
	7-16
	Net cash, 30 days.
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	Juniata Horse Shoes
	Juniata Horse Shoesper keg, \$3.80
	In too keg lots.
	Snow, Mud and Trotting Shoes " 4.50
	Steel Twe Calksper lb. 750c
	Steel Tee Calks
1	Shoesper keg. \$5.25
1	Shoesper keg, \$5.25 Thistlewood & Co.'s Self-Sharpening Snow
ı	Shoes,
1	Toe Calksper 1b. 8c
ı	White and Ded I and
1	White and Red Lead.
1	Assorted Kegs (all sizes)8c
ı	25 th Tin Pails, 100 th Cases
1	1279 ID 11II
1	12% bTin 9c Red Lead. in kegs, 7%c; in barrels, 7%c.
ı	Orange Mineral " 100: " 9%C.
1	Litharge " 734c; " 73c.
1	Orange Mineral "100: 974c." Litharge "73c: 76c. Dry White Lead "79c: 76c.
1	
1	Window Class

Single Stren	gth.			
Size.	AA.	A.	B.	C
6 X 8 to 10 X 15 11 X 14 to 15 X 24 18 X 25 10 20 X 25 20 X 25 10 20 X	\$7.50 8.50 80.75 12.25 13.00 14.50 15.00	\$6.75 7.75 9.75 10.75 11.50 13.25 14.00	\$6.25 7.25 8.75 9.00 9.75 10.75 11.25	\$5.7 6.5 7.7
6 x 8 to 10 x 15 11 x 14 to 16 x 24 18 x 22 to 20 x 30 15 x 36 to 24 x 30 16 x 36 to 24 x 30 16 x 36 to 26 x 44 16 x 46 to 30 x 55 10 x 6 to 30 x 55 10 x 6 to 34 x 60 14 x 66 to 34 x 66	12.00 13.75 17.25 19.75 21.00 23.25 24.00 25.75 27.75 29.25 33.25	11.00 12.50 15.75 17.25 18.50 21.25 22.50 23.25 25.00 27.75	10.00 11.75 14.00 14.50 15.75 17.25 18.00 19.25 21.75 24.00 27.75	10.50

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(The Chicago Stamping Jan.	Co., 72, 74 16, 1878.	d 76 Lai	ke St.)
Tin Plate		WW Chi	Book 10 or
10x14, [C,Ch'l. Good.	14×20. I	XX. Ch'	Best, 120
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20x28. IC, Charcoal Roof	ng, Good.		
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Names action	1 Dam		0.4
14x20, IC, "10x20, IC, "Block Tin.— Large rigs 26cmall 21cm	Dars	******* **	****** 220
Similar			
Zincsheet, 500 to 1000 f	. Canks		65c
Loose Sheets	*********	*********	7 C
Loose Sheets			6 c
CORDER BOTTOMS			20e
Sheathing			2410
Planished			210
" Boiler lengton			860
BOLL			280
dragiers' Sheets			
30x60, 6 to 7 lbs # # 34	C Street	15 to 100 lt	w m 30c
SolderF. S. & Co. 9 na	re l'ouade.	19 60 100 11	18 52C
Best Fine	14.0		
No. 1		********	steases IDC
No. 1	*********	*********	14c
Rooung	*********		· · · · · 12c
Braziers or Spelter Sold	Br	**	30c
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inbbit Motal-F.S. &	Co.'8		12c
NO. 2		********	10c
theet Iron			
No. 24 Common. 3-20c	Smooth.	Smooth	Smooth
Common.	Com.	Charcoal.	Juniata
No. 24 3-20c	4°20c		8 c
		61/o	834 C
	4°40c		
	4°40c 4°60c	6 ice	Rica
27 at 26 8-60c	4.40c	6%c	816C
27 de 26 8-60e	4.40c	6%e	816C
71 8 60c 3 alvanized Iron.—dis No. 16 to 20	4'40c 4'60c 40 %		814c
27	4'40c 4'60c 40 % No. 27 28		816C
27	4 · 40c 4 · 60c 40 % No. 27 28	********	814c 15c 16c
27	4'40c 4'60c 40 % No. 27 28	uned	814c 15c 16c
27 & 28. 3400 27. 8600 Salvanized Iron.—dis No. 16 to 20 120 21 to 24 130 25 & 26 140 Lussia Iron.— Perfect. 12560	4.40c 4.60c 40.3 No. 27 28 No. 1 Sta In She	ilned	8 %c 15c 16c 11e
25 & 25. 3*40c Galvanized Iron.—dis No. 16 to 20. 12c 21 to 24. 13c 22 & 26. 14c Russia Iron.—Perfect. 23c	4.60c 4.60c 40.8 No. 27 28 No. 1 Stu In She	ilnedets. 1c. bi	8 %c 15c 16c 11c gher.
27 & 25.	4.60c 4.60c 40.8 No. 27 28 No. 1 Sta In She	ilned ets. 1c. bi	8 %c 15c 16c 11c gher. 9%c
25 & 25 3*40c Galvanized Iron.—dis No. 16 to 20 12c 21 to 24 13c 25 & 26 14c Russia Iron.— Perfect 124c American Russia.— A 11c	4.60c 4.60c 40.8 No. 27 28 No. 1 Sta In She	ilned ets. 1c. bi	8 %c 15c 16c 11c gher. 9%c
25. & 25	4.40c 4.60c 40.8 No. 27 28 No. 1 8td In She B Lead Pir	inad ets. 1c. hi	8 4 c 15 c 16 c 11 c gher 9 4 c coll 6 c



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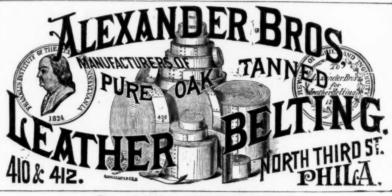
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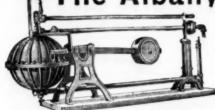
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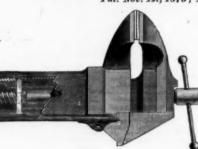


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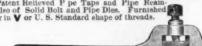
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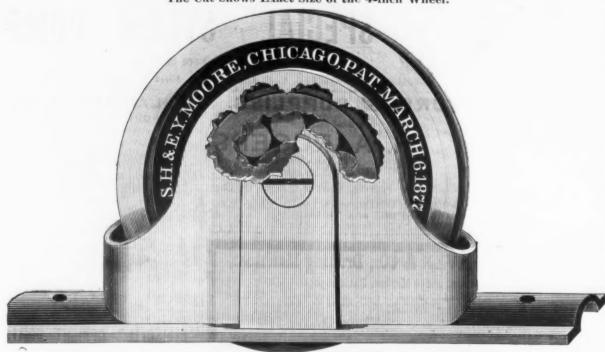






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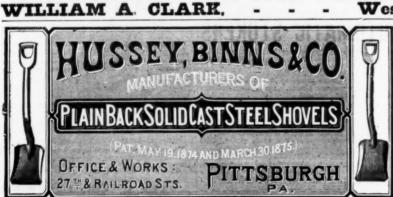
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Rora x.—Best Renned	1
Boring Machines.—Angle	
BracesBarber's	•
Spofford'sdir 50 & Bracker	
Saw Frames, with patterns complete * doz *5 50 Saws.	-
Star Japanned	
Saw Frames, with patterns complete	B
Butta.—Union Drilled Loose Jointdis 65% & 10% Wire Fast Jointdis 20&10%	
Brass Butts. Acord Loose J t	
Brass Butts. Us 30 & Wrought Table Butts and Back Flans revised list, dis 35 & Wrought Narrow Butts reduced, dis 40 \$	E
Cards.— Curry Cards No. X. per doz., \$0°35. dis 30 %	
Horse No. X, " 0°90	1
Cartridges. — U. S. Cartridge Co	
Cards.— Curry Cards No. X, per doz., \$0°55. dis 39 5 Horse No. X, "0°80. dis 30 5 Wool No. 8X, 250. dis 15 5 Cotton No. 10, 550. dis 15 5 Cartridges.— U.S. Cartridge Co. dis 80 5 Chrisels.— "Buck Bros." Shank Goods. als 20 5 Socket." dis 20 5 Conspanses and Dividers.—Benis qual 20 5	-
P. S. & W	1
Crow Burs.—Solid Steel	1
Consein.	2
Per doz\$9.00 12.00 15.00 18:00 24:00 No	1
Torrey's	1
Diviners	
Nicholson, new list	É
Stubb's Tapers, genuine, 3 in., \$1.50; 3½, \$1.68; 4½, \$2.13; 5, \$2.50	H
Hammers.—Maydole—new reduced listdis 15 & M. B. & D., sould cast steel, adze eye, No. 1, \$10; 1½,	B
M., B. & D., solid cast steel, beli face, No. 1	
Weifington Mills. \$7 b 10c Files. American dis 35 ¢ Nicholson, new list. dis 35 ¢ Stubb's Tapers, genuine, 3 in., \$1 50; 3 ½, \$1 66c , \$1 98; 4 ½, \$2 13 5 ; \$2 50 Hassmers. — Maydole—new reduced list. dis 15 ¢ M. B. & D., solid cast steel, adec eye, No. 1, \$10; 1½, \$5 5 ; 3 dis 25 å M. B. & D., solid cast steel, beli face, No. 1 \$11; 1½, \$9 75. dis 25 å Hammond—new reduced list. dis 15 ¢ Laugers & Hallers.—Anti-Friction dis 40 ¢ Climax dis 40 \$ c Hasseneta.—Underhill Edge Tool Co. dis 25 å Marcheta.—Underhill Edge Tool Co. dis 25 å Marcheta.—Underhill Edge Tool Co. dis 25 å	1
Climax dis 40 x Acme Rollers dis 40 x Harrheta Underhill Edge Tool Co. dis 25 x	I
C. F. Dowse, warranted Cast Steel—Shingday 0. \$4.75 : 1. \$5.25 : 2. \$5.75	
Claw	78.7
Achie Rollers Achie Rollers (1975)	
HingesStrap and T Stanley Worksdis 60&121/8	2.2
Wrought Screw Hook # D 5c	
Lanterns.—Iudular No. 0	75 78
Lend.—Sheet, 6%c.; Pipe, 6c	-
burners 5:50	T
K. P. & Co., axe naish, iong cutter. \$10 00 Short cutter. 9 50 Pick. 10 00	'
Short cutters.	V
Natls. Do and larger \$2 50 Natl Pullers. Little Giant—Smail. per dos., \$2 50 Little Glant—Large 9500 Padiocks. Whoox dis 83% \$3 2 Picks. A. F. & Co., Solid Eyes 3 to 6 6 to 7	v
Little Giant—Large	
Picks N. P. & Co., Solid Eyes	
Pins.—Universal Hatand Coat ali wood— 2 ln # gross \$230; 3 ln., 3 50; 4 ln., 4 50—dls 15 s Planes.—Auburn Tool Co	
N. Y. Tool Co	
Pocket Knives.—Conn. Cutlery Co new net list American Shear Co	I
American Shear Co	
Pol. wh'i br'zed face No. 115, 1 % in., 20c.; 116, 2 in., 26c. Pulley Blocks.—" Best Boston Make"	L
Rail Karn Door For Novesty and Anti-Pric- tion Hangers	L
Refrigerators—Helnz Patent	10
13 13 14 14 15 16c # m	E
Sand Prons.—Bless & Drake	D
Sand Paper	ZZ
" Champion " 40c	N

18	Sad Irons.—Bless & Drake B 2%
	Sand Prens.—Bless & Drike # B 23/ Sand Paper
٠,	Howe Hand and Panel-
_	X Cur. Wheeler, Madden & Clemsonper ft., 40c
-	" Champion " 400
-	" Lightning " 450
	" Great American " 500
	Wood Saws, Weish & Grimth F doz \$1200
	Sa.ws 1636 and Func. Fu
	Disector's
	Shaw Horses.—Extra. 2t doz \$2-9
	Folding " 3°3
.,	Disston's
.,	
	Scythe Stones.— "Willoughby Lake," first quality* gross \$6.5 second quality
-	"Willoughby Lake," hist quality gross \$6.5
	Sharets () Arnes
	M H & D
	M. B. & D
	Tools,-Alken a Pattern
	Aiken's Genuine, \$13
	" Saw Sets, \$13dis 404:10
	" Pocket Wrenches, \$8dis 50&10;
	Tren no. — Uneigh
	Vises.—K. P. & Co.'s Solid Box. Blacksmith & 10 10%
	Parkar's Parallel
	Rackus die 25
	" Howards," Parallel
	Parker's Parallel.
	Weights Window Weights # 11/6
	Wedges-Axe doz 3:0
	Bureka in spools, No. 28 to 40 assorted # gross \$3 %
	Wire Wetting - Clinton Wire Cloth Co. Green 93/4
	Drab or Black
	Drab or Black
	"Grard"
	Agricultural
	Wringers.
	Universal XX No.2 # doz #63 00; 254, 60 0
	Novemy, No. 10
	No. 29 4 67 0
	Excelsior
	" E, set tubs # doz 66 U
	Universal XX No. 2. \$\psi\$ doz \$483 \text{ 00} : 28, 60 \text{ 00} \\ Novelty, No. 10. \$\psi\$ doz \$60 \text{ 01} \\ No. 22. \$63 \text{ 03} \\ No. 22. \$65 \text{ 03} \\ Excelsior. \$\psi\$ doz \$60 \text{ 02} \\ Excelsior. \$\psi\$ doz \$60 \text{ 02} \\ Excelsior. \$\psi\$ doz \$60 \text{ 03} \\ Extractable \$\psi\$ doz \$60 \text{ 03} \\ Witnington, Cooley & Co.—Hoes, Rakes, Forks, &c. dis 40 \text{ 40} \\ dis 40 \text{ 5} \$\psi\$ special rate for Export.
	Witnington, Cooley & Co.—Hoes, Rakes, Forks, &c.
	dis 40 %. Special rate for Export.
	ST. LOUIS.
	Corrected weekly by Semple & Birge Mfg. Co.
	Animai Pokes
,	
	Apple Parers.—Conqueror
	Bushing Bonn's Ood Warmen
	Axes.—Wm. Mann's, Red Warrior 9 dos 9 50 "C. Marshall" 9 0
	C. Maranall 9 00

١	ST. LUUIS.	Brass. Copper.
	Corrected weekly by Semple & Birge Mfg. Co.	No. 0 to 20 Nic 4uc N
ı	Animai Pokes	" 31
١	Apple ParersConqueror \$ doz \$6 75	* 23
1	Hudson's Rotary 6 75	Brass Spring Wire, 2c. w m s
	AxesWm. Mann's, Red Warrior # dos 9 50	Brass Tubing. Plain to No. 3045c 5-
1	"C. Marshall" 9 00 Handled "\$4 extra	% inch
	Double Bitted 19 (4)	Copper Rivets and Bur
1	Hunt's	Brass Kettles 7 to 13 inc
1	Axies "Jones, Henry & Co.'s" Patent Lubri	Sheet Zinc 600 ibs. cask.
1	cating, Half Patent. Swelled Taper, Plain Ta- per and Concord Axlesdis 35 5	250 lbs. cask
	Com.non Axies (Pat. Lubricating), 1% inch and	Sheet
ı	upward	WireIron, Bright Market Iron, Coppered Market,
1	do. less than 1% inch	Fence, Nos. 1, 8 and 9
1	Babbitt Metal.— Nos	Trellis, Nos. 10 and 11
1	914 11 1614 20 31 Sic # B.	Han Ballan Charcon No. 'Oa
	Bellews Best St. Louis make, new list dis. 15 %	Hay Baling, Charcoul, No. 10 at No. 12
۱	Bella, -Troy. Church. School and Farm Bells D 300 "Improved Amalgam Bronzed." 15 in., \$200;	Broom, Tinned, Nos. 18 to 22
1	1710. #2 50: 19 in . #4: 91 in . #5: 94 in . #14	Fence Staples
	Helling - Boston Belling Co.'s Rubber dis Spario	Per loBlack, pape
	Bradford & Sharp's" Oak-Tanneo Leather dia 35 : Blue Grass Strippers.—Hand Machines F doz \$27 00	Tinned papered
1	Hollers Farmer's Front Feed Boilers. dis xi s	In balknew 3-16 14 114c 104c
1	" Caldrons cus 25 g	Sad Irons
	Bolting Cloth.—New gold list	Knameled Kettles, -5ta
1	Holts.—Arms. Bell & Co.'s Carriage & Tired's 75 \$	Enameted Sauce Pans. Standard Mfg. Co
1		Knameled BoilersSta
1	Power dis 30 s	Dripping Pans, -Smooth
1	Leather " 115 (a)	Ganera Fluters
1	Buggles, Favorite Corduro finish Power dis 3) 5	Monroe Fluters
1		Gem
	Cider Mills.	Japanese
	Buckeye Senior \$2700 Buckeye Juntor 1800	Dixon's, in bulk
1	Coffe RonstersSperry's dis 20 s	Granite Iron Ware
	Coffe Roasiers.—Sperry's	ByoonsNew 185
	Corn K nives, -Dunn E'ge T'or Co.'s Chp # goz 4 50	Retinned iron Ware
1	Seymour Mfg. Co.'s Solid Steel Back " 4 50	Japanned WareB' Lo
1	Corn Knives.—Dunn E'ge T'oi Co.'s Clip # 602 4 50 Seymeur Mfg. Co.'s solid Stee: Back 4 50 Corn Flanters.—" Champion " Herse \$4 00 St. Louis' Hand # dos \$12 00	Fry Pane
	24. Tours WHERE & GOR \$13 00	Ears

Corn Shellers.—Sandwich Mfg. Oo.'s— Power Shellers.—dis 10 \$
Corn Shellers, —Sandwich Mfg. Oo.'s— Power Shellers. —
Cultivators 'Buckeye' 4 shovel 3 . \$29 25
Drag Saw Machines.
A ACCIDIOT DIBE SAW WITH LOG Trucks dis 20 4
Fanning Mills.—Nasn & Cutt's
Bowman's Lever Cutter, \$6:25 24
Files.—Black Diamond, Mill. dis 37a Bastard. dis 30.5 Taper dis 345
Keystone Portable Forge Co 's dia 15 % Forks and those.
A'Surn Mfg. Co.'s Hav and Manure Forks Ew list
Gard-o weed Britis and Wheel Hoe. Allen's Double Wheel Hoe. One list, dis 29 \$ Planet Drill, Nos. 2 and 3. New list dis 29 \$ Combined Drill and Wheel Hoe dis 2' \$ Grain Register.—'Excelsior' \$13 00 terindre wills. Challenge Feed Mills dis 3' dis 3' \$
Bustard dis 30.5 Taper dis \$\frac{1}{2}\$ Taper dis \$\frac{1}{2}\$ \$ Taper dis \$\frac{1}{2}\$ \$ Taper dis \$\frac{1}{2}\$ \$ Keystone Portable Forge Co 's dis \$15.5 Forks and Hoese. A'Surn Mgc. Co.'s Hay and Manure Forks dis \$15.5 A'Surn Mgc. Co.'s Hay and Manure Forks dis \$15.5 Condition Mgc. Co.'s Hay and Wheel Hoese. Alies Double White and Wheel Hoese. Alies Double Mgc. Ros. 2 and \$5. does list of \$2.7 Combined Drill and Wheel Hoe dis \$2.5 Grain Regisser. "Excelsfor" \$13.00 Grain Regisser. "Excelsfor" \$13.00 Grain Regisser. "Excelsfor" \$13.00 Grain Regisser. "Challenge Feed Mils. dis \$0.5 Bradford's French Rurr Mils. dis \$0.5 Bradford's French Rurr Mils. \$4.00 Ax. Fick, Shedge and Small Handles. Rew list, dis \$2.3 Ax. Fick, Shedge and Small Handles. Rew list, dis \$0.5 Hay and Cotton Pressees. Dederics & Ratiroad. dis 10 Hay Knives. Dunn Edge Tool Co. 8. "Fdoz \$12.00 no
Dederick & Ratiroad
Perpetual
Boston Belting Co.'s Rubber Medium Sizesdis 50 % S. Siz. Hydrattdis 60 % Ice Tools
Ice Tools
Ice Tools
Pest Hele Augers,—Ciarl & Patent— No. 1, 7 doz. \$27; No. 2, \$30; No. 3, \$32. dia 25 g Pulleys.—5 inch
Halless.—Advance Sulky caco \$4 00 net St. Louis Revolving 14 tooth 4 15 net 16 4 55 net Hand Hay Rake. per 40x \$250
Geo. Marnes & Co.'s Knives
Cast Fron. dis low >
do. M. Rowland & Co., dis 30 5 and 50c per 102 carra do. O. Ames & Son 212 775 a and 50c 4 do. O. Ames & Son 212 775 a and 50c 4 Spaths and Credites,—Seymour Mg. Co./s., dis 25g Sorghum M. Johnery.—Bed Cane Mills. Scaulin's Seamless Pans and Evaporators
Tradedis 10 %
Wheetbarrows.—Champion from wheel. \$\times \alpha \text{cis} \ \frac{40.5}{27.50}\$ Champion Wood Wheel. \$\times \alpha \text{cis} \ \frac{40.7}{27.50}\$ Garden. \$\times \alpha \text{dog} \ 27.50
Wagons, - Whitewater Farm Wagons-
2% in. \$66; 3 in. \$67.39; 3% in. \$70; \$1% ir. \$71 Wire Baie Ties.—Buckeye Double Twist net list Dederick Adjustable new list. 1 25 \$
St. Louis Metal Market.

	Thimbie Skein-
	2% in, \$66; 3 in, \$67, 59; 3% in, \$70; 8% ir, \$71 Wire Bale Ties.—Buckeye Double Twist net list Dederick Adjustable
	St. Louis Metel Market.
	(Corrected Weekly by Mesars. R. Selleto & Co.)
	Tin Pinte. C. Nuzi A. Best Char 3 760 DX. 124x17, B. Char. 5 950 LX. 124x17, B. Char. 5 950 DX. X. 124x17 12 0 DX. X. 124x17 14 DX. X. X. 14x17 14 DX. X. X. 14x17 14 DX. X. X. 14x17 15 DX. X. 124x17 15 DX
	1X .10x14, " 950 DX X,123x17 " 12 0
	IX, 12x12, " 9'30 IC, 20x28, " 17
	IX, 14x20, " 950 IXX, 20x23, " 25,50
	IXX, 14x20, B. Char. 14'50 IX, 14x20, Best Roof. 6 60
	IXXXX, 14x20 17:00 IC, 20x29 13:50
	IC, 14x14 " 14 0 IC, 10x14, Best Coke., e-25
	IXX, 14x14, " 20 50 4C, 10x20, " 10×0
	SLU D. Ref'a Jani's
١	No. 16 to 20.
	No. 22 to 24 8 4 5.9c 7.8c
	No. 273 40c 4 4c 6 3c 8 2
	Perfect—No. 9, 10, 11, 12 per 1b, 12%c
	No. 1 Stained—No. 9, 10, 11, 12
	D. D. D. D. D. D. D. D.
	No. 24 to 27, A quanty
	Banes, Large Pigs22c do. Bmail
	Juniata, or ist quality. 49 40 8 Blocs Tin. 3anes, Large Pigs. 22c do. Bmail 20c Straits, Large Pigs 9c Bar 21c Eng. Ref"d, Large Pig 15c Soider 21c
	Eng. ker'd, Large rig. 18c No. 2, in Bars 1c Solder Extra in Bars 14c No. 2, in Bars 1c No. 1, in 2c Spelter Solder 24c Pig Lead Pigs 5c in Bars 6c Antimony 15c Bismuth \$2 to Nickel 2 to Crucibles Dixon's \$8 No. 4c Robbit Metal
	No. 1, in
	Antimony
	Nickel 2 50
	Babbit Metal.
	Babbit Metal. No. 1 # B. 16c No. 3 # B 11%0 2 14c 4 7 xc
	Copper Braziers, 3x60, 14 to 100 lbs. Sneets 28c 10, 11 & 12 lbs. 3ec 10, 11 & 10 lbs. 3ec 10, 12 lbs.
	10, 11 & 12 lbs., "
	6 and 7 lbs. 4
	Tinned, 14x48, 14 and 16 oz
	"Botter Sizes. 14 and 16 oz
	14 b. Sheets28c
	Bar Copper, Square and Round, % to 1% inch
	Copper Bottoms % inch
	Soldering Coppers350
1	Bruss. Roll, No. 10 to 28, 12 in. in width
I	68 93 16 64
	36, 16 36c 36c 37c 38, 16 37c 37c 38c 38c 40, 6 50c
I	Platers, No. 40, 6 Brass and Copper Wire, Brass, Copper, 1 Brass, Copper, 1 Brass, Copper, 1
1	No 040 20 Sto 20 Sto 24 Brass, Cerebei
	" 21
j	Brass Copper Graph
	Brass Spring Wire, 2c. w m advance.
1	Brass Spring Wire, 2c. # b advance. Brass Tubing. Plain to No. 30. 45c 5-16 inch. 46c

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Brass Kettles 7 to 15 inches
all sizes over
50 ths. cask....

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iron Rivets.—Black, papered.
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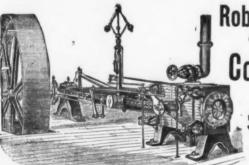
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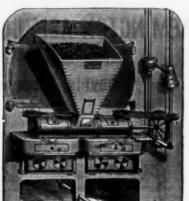
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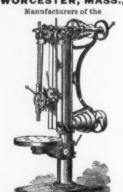
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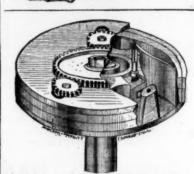
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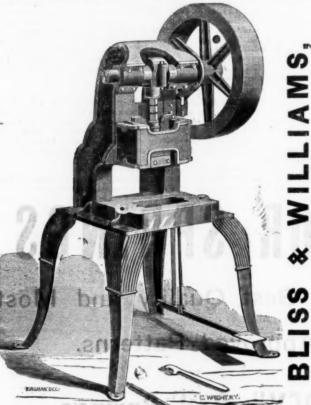
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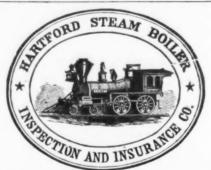
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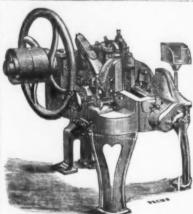
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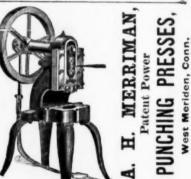
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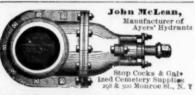


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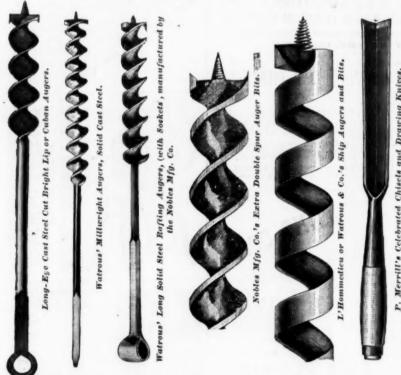
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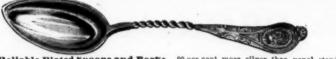
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The Emperor, Dom Pedro, accompanied by Director General Goshorn, Superintendent Albert, and others, visited Machinery Hall, at the Centennial on the evening of June 28th. Among other things inspected, at the invitation of E. M. BOYNTON, of New York, they witnessed a trial of the New Lightning Saw, patented March 26, 1876. Two men, with one of these saws, cut off a sound log of gum-wood, one foot extreme diameter, in seven seconds, or at the rate of a cord of wood in five minutes. Messrs. Corliss, Morell, Lynch, and other members of the commission, witnessed the triale and timed the cutting. The Emperor remarked, That was fast, very fast cutting. Last evening the Emperor made another examination of the saw.—Philadelphia Press, June 30.

"Boynton's Saws were effectually tested before the judges at the Philadelphia Fair, July 6th and 7th. An ash log, eleven inches in diameter, was sawed off, with a four-and a-half-foot lightning cross-cut, by two men, in precisely six seconds as timed by the chair man of the Centennial Judges of Class Fifteen. The speed is unprecedented, and would cut a cord of wood in four minutes. The representatives of Russia, Austria, France, Italy, Spain, Belgium, Sweden, England, and several other countries, were present, and expressed their high appreciation."

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